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UNION OF SOUTH AFRICA

ANNUAL REPORT

OF THE

DEPARTMENT OF PUBLIC HEALTH

Year Ended 30th June, 1928

Presented to both Houses of Parliament by Command of His Excellency the Governor-General

PRICE 2s.

PRETORIA
THE GOVERNMENT PRINTING AND STATIONERY OFFICE
1928

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Department of Public Health.

REPORT FOR THE YEAR ENDED 30TH JUNE, 1928.

To the Honourable the Minister of Public Health,
Pretoria.

I have the honour to submit hereunder Report of the Department of Public Health for the year ended 30th June, 1928:—

I.—INTRODUCTORY.

The "Health Year" ended 30th June, 1928 has been comparatively quiet and uneventful. Apart from malaria in some districts of the Transvaal, there have been no severe prevalences or epidemics of infectious or preventable diseases. Plague has been quiescent, though there has been some further spread of the area of enzootic infection in veld rodents. A large part of the Union suffered from one of the most severe and prolonged droughts on record, with prejudicial effects on the health of the inhabitants, more especially the children, owing to shortage of milk and other food. The only direction in which notable progress has been made is in that of health and medical legislation; a comprehensive consolidating and amending Medical, Dental, and Pharmacy Bill and a Public Health (Amendment) Bill were passed during the Session of Parliament and a Food, Drugs and Disinfectants Bill passed Second Reading and was reported on by a Select Committee of the House of Assembly.

Some progress has been made in other directions, but in the main, owing to restricted funds and staff and the cumbrous, complicated, and disjointed administrative machine which deals with local government, health, hospitals, medical, nursing and cognate matters in the Union, it has been a period of marking time and "carrying on." The salient features of the year from a health standpoint, and the work of the Department during the period, are concisely recorded in the subsequent parts of this report. The outstanding and urgent needs of the Union in the domain of public health and welfare may be summarized as follows:—

(*a*) A simpler and better co-ordinated organization for administering and dealing on a national basis with local government, sanitation, public health, hospitals, and the medical, midwifery and nursing needs of the people.

(*b*) Closer co-operation and co-ordination between authorities dealing with the preventive side of medical matters and those dealing with the treatment, care and nursing side, and between the health staffs of the Government and local authorities on the one hand and medical practitioners on the other.

(*c*) Better medical, hospital and nursing facilities in many of the small centres and in rural areas, including native areas.

(*d*) More health publicity and educative work for the dissemination of knowledge of the simple principles of healthy living amongst all races and classes of the population.

(*e*) More attention to the safe disposal of night-soil, refuse and manure (especially horse-manure), and the prevention of fly-breeding in most urban centres and on farms.

(*f*) More attention, of an intelligent and instructed kind, on the part of parents to the care and suitable feeding of infants and children.

(*g*) The provision, at the public cost and in conjunction with an adequate and efficient organization for the medical inspection of school children, of a system of medical and dental care and treatment of children of school-going age as regards preventable and remediable diseases and defects.

(*h*) The enactment and enforcement of a comprehensive and effective law for preventing the adulteration or misdescription of food and drugs.

II.—VITAL STATISTICS.

Europeans.—Detailed statistical tables and particulars are published in the reports of the Director of Census and Statistics and in the *Official Year Book of the Union.* The information regarding the European population is very complete, and is compiled and tabulated on the standard international system.

The following table summarizes the salient features of the vital statistics of the European population for each calendar year since 1920:—

TABLE A.—UNION OF SOUTH AFRICA: SUMMARY OF VITAL STATISTICS OF EUROPEAN POPULATION, 1920-1927.

Calendar Year.	European Population (estimated).	Birth Rate per 1,000 of population.	Death Rate per 1,000 of population.		Percentage of Total Deaths, the cause of which was medically certified.	Infantile Mortality Rate. (Deaths of infants under one year per 1,000 live births registered.)	Maternal Mortality Rate. (Deaths of mothers in connection with pregnancy or childbirth per 1,000 live births registered.)	Survival Rate or Rate of Natural Increase. (Excess of births over deaths per 1,000 of population.)
			Actual or Crude.	Standardized.*				
1920	1,499,911	28·97	11·09	12·15	79·78	90·07	4·10†	17·88
1921	1,519,488‡	28·44	10·41	11·43	80·76	77·09	4·94	18·03
1922	1,556,241	27·52	9·48	10·41	83·00	72·91	5·21	18·04
1923	1,579,733	26·70	9·77	10·65	82·77	74·42	5·22	16·93
1924	1,610,774	26·29	9·62	10·44	84·74	73·73	4·75	16·67
1925	1,637,472	26·51	9·39	10·15	86·45	68·39	5·62	17·12
1926	1,676,660	26·16	9·59	10·28	87·76	64·82	4·56	16·57
1927	1,708,955	25·95	9·73	10·34	89·93	70·63	4·80	16·22

* The rate which would have obtained had the age and sex distribution of the population been the same as that of England and Wales at the 1901 census, the standard usually taken for international comparisons.
† Medically certified deaths only. Rates for subsequent years calculated on total deaths registered.
‡ Actual (per census).

Non-Europeans.—The available vital statistics of the non-European population of the Union are very incomplete. Notification of births and deaths is compulsory only in urban areas, and in many of these, owing to the large proportion of non-European male adults temporarily resident as labourers and to other circumstances, computations of death-rates and similar statistics are, in many cases, useless or misleading.

For the Union as a whole, the only reliable figures available for the non-European population are those of the decennial census enumerations, the last of which took place in 1921, when the figures were as follows:—Bantu, 4,697,813; Asiatic, 165,731; mixed and other coloured, 545,548; total 5,409,092.

The estimated non-European population of the Union at 30th June, 1928, based on the 1921 Census and the previous rates of natural increase, were as follows:—Bantu, 5,277,023; Asiatic, 183,771; mixed and other coloured, 577,852; total, 6,038,646.

III.—ADMINISTRATIVE MATTERS.

1. *Staff.*—The accompanying chart shows the organization and functions of the Department and its principal personnel as at 30th June, 1928.

The principal changes during the year were:—

Appointments, Promotions, and Transfers:

- Dr. J. Daneel, Medical Officer, Pretoria Leper Institution, promoted Medical Superintendent, Rietfontein Hospitals, 1st October, 1927.
- Dr. W. F. Rhodes, Pathologist, Durban Laboratory, promoted Senior Pathologist, Capetown Laboratory and Officer-in-Charge of the Rosebank Vaccine Institute, 5th June, 1928.
- Dr. A. J. van der Spuy, transferred from Department of Defence and appointed Assistant Health Officer (Inspection and Field Staff), 1st December, 1927.
- Dr. G. D. Laing, appointed Assistant Health Officer (Inspection and Field Staff) (three years' contract), 1st March, 1928.
- Dr. D. H. S. Annecke, appointed Senior Pathologist, Durban Laboratory (three years' contract), 6th February, 1928.
- Dr. G. A. Batchelor, District Surgeon, Durban (three years' contract), to be Senior District Surgeon and Port Health Officer, Durban, 1st December, 1927.

Retirements:

- Dr. L. G. Haydon, Assistant Health Officer, Head Office, retired on superannuation, 3rd September, 1927.
- Dr. G. W. Robertson, Medical Officer-in-Charge of the Rosebank Vaccine Institute and Consulting Pathologist (part-time), Capetown, finally retired on superannuation, 1st June, 1928.
- Dr. H. E. Fernandez, Port Health Officer, Durban, employed in temporary capacity since 1st December, 1921, finally retired on superannuation, 27th January, 1928.

Deaths:

- Dr. J. M. Mehliss, Medical Superintendent, Rietfontein Hospitals, died 30th July, 1927.
- Dr. H. H. Budd, Medical Officer, Leper Institution, Robben Island, died 14th September, 1927.

An urgent need is the appointment of an Assistant Health Officer with headquarters at Kingwilliamstown or East London to carry out health inspections and investigations (including leprosy work) in the Eastern Cape Province, Ciskei, and Transkei.

The administrative and clerical staff of the Department has been reduced under pressure to the utmost compatible with carrying out essential work. It consists largely of frequently changing juniors with little or no experience, so that an undue amount of work is thrown on the few senior and responsible officers. There is no margin whatever for emergencies, and with the steadily increasing volume of work it is becoming more and more difficult to avoid delays and to arrange for officers to get recuperative leave.

CHART OF DEPARTMENT OF PUBLIC HEALTH *as at 30th June*, 1928.

Minister of Public Health (HON. D. F. MALAN).

Council of Public Health:
Minister (Chairman)
Secretary and Chief Health Officer (Deputy Chairman)
Sir Spencer Lister, Drs. S. M. de Kock, C. Porter and E. Hill
Messrs. J. H. Nicolson and M. C. Vos
Mrs. S. B. Broers

Leprosy Advisory Committee:
Secretary and Chief Health Officer (Chairman).
Sir Spencer Lister.
Professors A. W. Falconer and O. K. Williamson.
Drs. A. Pijper, F. C. Willmot and G. W. Robertson.

Secretary and Chief Health Officer (Dr. J. A. Mitchell).

Head Office a Establishment.

2 Assistant Health Officers.
(Sir E. N. Thornton† and Dr. W. A. Murray)

1 Chief Clerk.
(A. de V. Brunt)

1 Accountant.‡
(A. J. Klette)
1 Principal Clerk (Accts.).‡
(L. J. Hatch)

2 Principal Clerks.
(C. N. Millard and A. Stuart)

1 Senior Clerk,
28 Clerks, Typists, etc.

Sections.

Assistant Health Officers (Detached).	Inspection and Field Staff.	Pathological Laboratories.	Port Health Officers.	District Surgeons.	Housing.	Local Authorities.	Leprosy Institutions.	Venereal Diseases Hospitals.	Tuberculosis.	Epidemic and Infectious Diseases (Plague, Typhus, Smallpox, etc.) and Vaccination.	Food and Drugs Adulteration: Habit-forming Drugs.	Medical, Dental, Pharmacy, Midwifery and Nursing.
Capetown: (Dr. F. C. Willmot). Durban: (Dr. G. A. Park Ross).	3 Assistant Health Officers: (Drs. E. H. Cluver, A. J. van der Spuy and G. D. Laing). 6 Inspectors, (5 plague and 1 typhus).	Capetown and Vaccine Institute, Rosebank: (Dr. W. F. Rhodes, Dr. J. D. Wicht, Assistant. Durban: (Dr. D. H. S. Annecke). *South African Institute for Medical Research, Johannesburg.	Capetown: (Dr. J. M. Bosman). Durban: (Dr. G. A. Batchelor). Port Elizabeth: (Dr. H. W. A. Kay). East London: (Dr. R. V. S. Stevenson). Simonstown: (Dr. A. B. Bull). Knysna: (Dr. T. B. Newman). Mossel Bay: (Dr. C. A. Kitching).	8 Whole-time. 3 Whole-time, (jointly). 281 Part-time. 292 Total.	Central Board—Sir E. N. Thornton (Chairman), Sir J. G. van Boeschoten, Messrs. F. W Jameson, J. L. Hall, R. S. Gordon (Member and Secretary).	221 Municipalities. 82 Village Management Boards. 31 Local Boards. 29 VillageCouncils. 32 Health Committees. 8 Local Administration and Health Boards. 90 Divisional Councils. 1 Health Board. 144 Magistrates. 638 Total.	Pretoria: (Dr. J. W. de Vos). Robben Island: (J. H. Alexander and Dr. H. D. Matheson (Act.). Emjanyana: (J. A. Macdonald and Dr. A. R. Davison). Mkambati: (H. C. Bellew and Dr. F. S. Drewe). Amatikulu: (F. J. Roach and Dr. G. H. Wildish). Bochem.	Rietfontein, Johannesburg: (Dr. J. Daneel). Kingwilliamstown. *Bochem. *Elim. *Jane Furse Memorial. Several smaller hospitals.	Nelspoort Sanatorium: (Dr. S. S. Hewitt). *Holy Cross Medical Mission.	Field Staff. District Surgeons. Local Authorities. Magistrates, etc..	Inspectors, Police, etc. Chemical work done in chemical laboratories of Department of Agriculture at Capetown and Johannesburg.	*Cape Medical Council. *Cape Pharmacy Board. *Transvaal Medical Council. *Transvaal Pharmacy Board. *Natal Medical Council. *Natal Pharmacy Board. *O.F.S. Medical and PharmacyCouncil.

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* Receives Grant-in-Aid. † Is also Director of Medical Sirvices (Defence). ‡ Jointly with Department of Interior.

2. *Council of Public Health.*—No meeting of the Council was held during the year.

3. *Legislation affecting Public Health.*—At the commencement of the 1928 Session, consideration of the *Medical, Dental, and Pharmacy Bill* was resumed by the House of Assembly at the Committee stage, which it had reached by the end of the previous Session. The Bill was carried through all remaining stages in both Houses and passed.

The following is a brief account of the history of this measure, its main objects, and the system and machinery of its administration:—

The need for amending and co-ordinating the Medical, Dental and Pharmacy Laws of the four Provinces of South Africa was recognized even before Union.

In the year of Union (1910) conferences of representatives of the several Medical Councils and Pharmacy Boards were held at Johannesburg and Bloemfontein—with the approval and under the auspices of the Government—and the framework of a Bill was prepared. Subsequently a deputation from these bodies waited on the Minister of the Interior, laid the position before him, pressed for consolidating and amending legislation for the Union, and submitted the rough outline of a Bill. A draft Bill on the lines recommended by the deputation was then prepared by the Government—which, however, was unable to proceed with the matter until 1917. During the Session of that year a Bill was introduced to the Senate by the then Minister of the Interior (Sir Thomas Watt), and, after consideration and amendment by a Select Committee of the Senate, was read a third time and sent to the House of Assembly. It only reached the latter towards the end of the Session, and, owing to pressure of business, got no further than the first reading.

The Bill was reprinted in 1921, with a number of the Senate amendments incorporated. It was re-introduced by Mr. Patrick Duncan, Minister of Public Health, in 1922, and read a first time in the House of Assembly—but got no further.

It was proceeded with the following year (1923) and referred to a Select Committee, which submitted a report to the House of Assembly. It again came up in the Assembly in 1924, and was once more referred to a Select Committee for further consideration and report in regard to a clause dealing with unqualified medical practice; the Committee reported, but no further progress was made.

The Bill was before Parliament in 1925 and 1926, but without any appreciable progress being made.

In 1927 it was re-introduced by Dr. D. F. Malan, Minister of Public Health, and the greater part of it dealt with in Committee of the whole House.

The Bill was resumed at this stage during the 1928 Session, and passed by both Houses—being eventually promulgated in the *Government Gazette* of 22nd May, 1928, as Act No. 13 of 1928. The Act comes into force on 1st January, 1929.

The main objects of the Act are:—

(*a*) To consolidate and amend generally the laws regarding medical practitioners, dentists, chemists and druggists, nurses and midwives. As enumerated in a schedule to the Act, there are sixteen such laws, with differing provisions in the several Provinces, all of them more or less defective and out-of-date.

(*b*) To remove the old artificial barriers against free inter-Provincial practice and reciprocity—a legacy from pre-Union days.

(*c*) To abolish the seven existing bodies (a Medical Council and a Pharmacy Board in the Cape, Transvaal, and Natal, and a Medical and Pharmacy Council in the Orange Free State), and to substitute therefor a South African Medical Council and a South African Pharmacy Board for the Union.

(*d*) To make suitable provision regarding the Medical Schools in connection with the Universities of Capetown and the Witwatersrand. That at Capetown was started in 1912, and provision for a full course made in 1919; that at Johannesburg was opened in 1919. Both now provide a complete and first-class course of medical study and training. The medical degrees of both are accepted for registration by the General Council of Medical Education of Great Britain.

(*e*) To improve the midwifery and nursing services of the Union, and generally to protect the public, and also registered persons, against the practice of unregistered and untrained persons.

(*f*) To prevent the making of excessive or extortionate charges for services or supplies by registered persons.

(*g*) To regulate the carrying on of the business of chemist and druggist by joint-stock companies.

(*h*) To more effectively control the sale and use of poisons and poisonous substances.

(*i*) To regulate and restrict the importation, sale and use of narcotic and habit-forming drugs such as opium, cocaine and Indian hemp or "dagga." Apart from the urgent need for such control in the interests of the public this is an international obligation; the parties to the Treaty of Peace with Germany undertook (Article 295) to enact legislation necessary to bring into force the International Opium Convention of 1912. The existing laws in the several Provinces, supplemented by a clause (Section 10) in the Customs and Excise Duties Amendment Act, No. 35 of 1922, give certain powers in this connection (mainly to make regulations), but specific and comprehensive legislation regarding this matter was very desirable.

(*j*) To provide for the training, examination and registration by the South African Medical Council of dental mechanicians, sanitary and health inspectors, health visitors and other classes of persons concerned with the prevention or treatment of human diseases.

(*k*) To extent the system of registration and supervision of the medical, dental and cognate professions and callings to the Mandated Territory of South-West Africa.

Incidentally, the Bill will obviate overlapping and duplication as between the Government and the bodies concerned (keeping of registers and so forth) which the present system entails, and will relieve the Department of Public Health of a certain amount of work.

The South African Medical Council to be established under the Act will consist of 25 members, namely, 5 medical practitioners (one of them in respect of South-West Africa), 1 dentist, and 2 laymen nominated by the Minister; 10 medical practitioners and 3 dentists elected by registered medical practitioners and dentists in the Union; 2 registered persons elected by registered nurses, midwives, and masseurs; and 2 medical practitioners nominated by the two Universities having medical schools (i.e. those of Capetown and the Witwatersrand).

The Pharmacy Board will consist of 9 members, namely, 1 medical practitioner and 2 chemists and druggists nominated by the Minister; and 6 chemists and druggists elected by the registered chemists and druggists in the Union.

The offices of both bodies shall be at Pretoria, but meetings may be held at any other place.

Regulations regarding various matters under the Act may be made by the Governor-General or the Minister—after consultation with, or at the request of, the Council or Board.

The Council and Board may make "rules" regarding their procedure and other matters—subject to the concurrence of the Minister.

The Council or Board may erase from the register the names of persons who have been found guilty of improper or disgraceful conduct—subject to an appeal to the Supreme Court.

The Public Health (Amendment) Bill was drafted in 1923, but owing to pressure of other matters was not introduced to Parliament until 1926, when it got no further than first reading. It was re-introduced in 1927, but made little progress until the last few days of the Session, when some of its especially urgent clauses were picked out and passed as Act No. 36 of 1927—see last Annual Report, pages 14 and 15. The remainder of the original Bill was passed last Session as Act No. 15 of 1928, its principal provisions being as follows:—

(*a*) *Exemption of conscientious objectors to vaccination against smallpox.* The Public Health Act, No. 36 of 1919, requires the vaccination of all children and the transmission to the registrar of vaccination of a certificate to that effect within thirteen months after birth, exceptions being made in the case of children who are medically unfit or who have had smallpox or who are insusceptible to vaccination. Difficulties with " conscientious objectors " arose soon after the coming into force of these provisions, and in 1923 the Government decided not to prosecute " genuine conscientious objectors " until Parliament had had an opportunity of reconsidering the whole matter. As there was no statutory provision for distinguishing between the genuine and the non-genuine, the result was that all prosecution by Government for non-compliance was stopped, vaccination of all classes, but especially of Europeans, tailed off, and an unvaccinated population highly susceptible to smallpox rapidly accumulated in all the large centres. During the early part of 1926 a considerable outbreak of smallpox occurred in Johannesburg and, later in the same year, a more serious one occurred in Durban, mainly among the Indian community, these epidemics being only arrested and suppressed by prompt and widespread vaccination of the population. The provisions of the new Act will enable the father or other person having the exclusive custody of a child who satisfies the registrar of vaccination that he has sufficient knowledge and intelligence to form an independent opinion on the subject and that he has conscientious objections to vaccination on religious grounds, or a genuine conviction that vaccination would prejudice or endanger the health of the child, and who makes application on oath within six months of the birth of the child, to obtain exemption in respect of vaccination of the child. Subject to similar conditions, both adults and children may be exempted from vaccination on following a similar procedure within six months of the commencement of the Act or of entry into the Union. In no case does such exemption apply to vaccination in connection with outbreaks of smallpox or to persons landing from infected vessels. Concurrently with the institution of the system of exemption, steps will be taken to strictly enforce the vaccination provisions of Act No. 36 of 1919 in respect of children and persons not so exempted.

(*b*) Extension to meat and food inspectors and health visitors employed by local authorities of the provisions of sections 14 and 16 of Act No. 36 of 1919, regarding protection from improper dismissal and part-refund of salaries by Government.

(*c*) Empowering the Minister to make any disease notifiable, whether infectious or not. It is proposed under these powers to make certain diseases, including blackwater fever and lead poisoning, notifiable by medical practitioners.

(*d*) Amendment of section 36 of Act No. 36 of 1919 regarding the burial of the bodies of persons dying from infectious disease and of persons found dead, so as to remove certain ambiguities in the original section.

(*e*) Giving the Minister discretion as regards part-refund of expenditure incurred by local authorities in connection with outbreaks of infectious disease.

(*f*) Requiring a medical practitioner who knows or has reason to believe that any person is suffering from venereal disease and is not under medical treatment, or is not attending regularly for treatment, to report the matter to the medical officer of health of the local authority.

(*g*) Powers of summary action in the case of nuisances of an urgent nature.

(*h*) Further powers regarding the supervision of nursing and maternity homes. No person may open or carry on any such home unless it is registered with the Department; and the Minister may refuse to register any home which he " considers unsatisfactory as regards construction, equipment, staff or otherwise."

(*i*) Empowering the Minister to make regulations enabling local authorities to register and supervise, in the interests of the public health, midwives, whether qualified or unqualified, practising within their areas, and to remove from the register and terminate the practise of midwives whose practising is considered prejudicial or dangerous to the public health.

(*j*) Empowering the Minister to contribute towards the costs incurred by provincial administrations in training midwives or carrying out any other function referred to in section 135 (*b*) of Act No. 36 of 1919.

(*k*) Amending section 158 of Act No. 36 of 1919 in respect of the functions of the Minister of Public Health as local authority for land or premises owned or occupied by Government. Under the amended section the Minister will carry out all such functions in respect of such land or premises and also in respect of persons and things thereon.

The Act also includes a number of minor additions and amendments to Act No. 36 of 1919 which experience of the working of that measure has shown to be desirable. It is being proclaimed to come into effect on 1st October, 1928.

The Food, Drugs and Disinfectant Bill was re-introduced in the House of Assembly, passed first and second readings, and was referred to a Select Committee which, after taking evidence, reported the Bill, with amendments, to the House shortly before the end of the Session. The Minister hopes to proceed with the Bill from this stage next Session.

The Liquor Act, No. 30 *of* 1928, introduced by the Minister of Justice and passed during last Session, contained important provisions regarding the sale of methylated spirits and intoxicating medicines, also regarding the prescribing of liquor by medical practitioners for persons of the classes which are prohibited by the Act from obtaining or possessing liquor. Sections 130 and 140 give effect to the recommendations of the Inter-Departmental Conference on the Traffic in Methylated Spirits convened by the Minister of Public Health in January, 1923, which are summarized on page 33 of the Department's Annual Report for that year. Section 131 provides for proclaiming any patent, proprietary, or Dutch medicine an "intoxicating medicine," and for effectively regulating, restricting and controlling the sale of such medicines. Under sections 97 and 98 a medical practitioner may only prescribe or order liquor in quantity not exceeding half a pint to a person who, under the Act, is prohibited from obtaining or possessing liquor, if he certifies that the person is in a condition of dangerous illness and that the administration of liquor is therefore necessary either immediately or over a period not exceeding forty-eight hours. In non-acute cases in such persons, he may prescribe not exceeding a quart of wine or spirituous liquor or a gallon of any other liquor on certifying that the person is suffering from the illness stated and that the administration of liquor of the kind, in the quantities and at the intervals stated in the certificate, is necessary for the restoration of his health; the prescription or order must further be endorsed by a police officer to the holder of a bottle liquor licence before the liquor can be supplied. The forms of medical certificate to be used under these sections are given in the Fifth Schedule to the Act, section 165 of which further provides that the medical practitioner giving such certificate must have seen the person in respect of whom the certificate is given and have satisfied himself that the statements made therein are true and correct.

4. *District Surgeons.*—New district surgeoncies were established during the year at Warden (Orange Free State); Durban (Assistant) and Hlabisa (Natal); and that at Hermanus (Cape) was re-established. The following table shows the position at 30th June, 1928:—

TABLE B.—DISTRICT SURGEONS AS AT 30TH JUNE, 1928.

Province.	Whole-time.	Whole-time, but jointly with Local Authority or Public Body.	Part-time.		Total.
			On Inclusive Annual Salary.	On Annual Salary, with certain Supplementary Fees and Allowances.	
Cape	3	3	1	137	144
Natal	3	—	—	39	42
Transvaal	2	—	7	50	59
Orange Free State	—	—	—	47	47
UNION	8	3	8	273	292

The eight whole-time officers are those at Capetown, Durban (3), East London, Port Elizabeth, and Pretoria (2); the three whole-time officers appointed jointly with local authorities or public bodies are those at Grahamstown, Queenstown, and Wynberg.

5. *Local Authorities and their Health Staffs.*—Table C shows the numbers of the various classes of local authorities under the Public Health Act as at 30th June, 1928. Nine local authorities, namely, the Bloemfontein, Capetown, Durban, East London, Johannesburg, Pietermaritzburg, Port Elizabeth and Pretoria Municipalities, and the Divisional Council of the Cape, have whole-time medical officers of health. The Kimberley Board of Health, jointly with the Kimberley Municipality, has a medical officer who devotes some of his time to laboratory work at the Kimberley Hospital but does no private practice. At Grahamstown and Queenstown there are officers who act as health officers to the municipal and divisional councils and carry out the duties of district surgeons but do no other medical work.

On the 30th June, 1928, there were 63 local authorities, namely, 29 in the Cape, 9 in Natal, 6 in the Orange Free State, and 19 in the Transvaal, employing certificated sanitary inspectors devoting the whole of their time to sanitary work. This is an increase of four as compared with the previous years' figures.

TABLE C.—LOCAL AUTHORITIES UNDER THE PUBLIC HEALTH ACT (1919) AS AT 30TH JUNE, 1928.

Province.	Municipalities.	Village Management Boards.	Local Boards.	Village Councils.	Health Committees.	Local Administration and Health Boards	Magistrates.	Divisional Councils.	Board of Health.	Total.
Cape	128	77	15	—	—	—	29	90	1	340
Natal	9	—	16	—	—	8	43	—	—	76
Transvaal	23	—	—	29	32	—	40	—	—	124
Orange Free State	61	5	—	—	—	—	32	—	—	98
UNION	221	82	31	29	32	8	144	90	1	638

IV.—WORK OF THE DEPARTMENT.

1. *Inspections, Investigations and Field Work.*—During the year, 616 inspections, investigations, etc., were carried out by the health officers of the Department, made up as follows:—Systematic general inspections of local authority areas, 75; mines, 138 (including 39 compounds, 20 locations, 33 hospitals, 23 dressing stations, 12 rescue training stations, 4 shaft first-aid posts, 7 underground inspections); factories and works, including "offensive trade" premises, 43; general and chronic sick hospitals and other institutions under Provincial Administrations, 49; mental and Indian hospitals under Department of the Interior, 3; leper institutions, venereal diseases hospitals, and tuberculosis sanatoria, 20; private hospitals, 9; prisons, reformatories and other institutions, 4; schools and orphanages, 3; nursing and maternity homes, 26; water supplies, 10; drainage and sewerage, 16; housing and overcrowding, nuisances, and insanitary conditions, 39; departmental inquiries under Public Health or other Act, 1; formidable epidemic diseases: typhus, plague, smallpox, etc., 36; other notifiable infectious diseases, 18; non-notifiable communicable diseases, 10; other inspections, investigations and field work, 116. These inspections involved medical officers travelling a total of 40,464 miles by rail and 14,341 miles by road, and a total of 623 days' absence from office.

2. *Addresses, Published Papers, and Special Investigations by Members of the Staff*:—

Dr. J. ALEXANDER MITCHELL, *Secretary for Public Health and Chief Health Officer for the Union*—

"Public Health Policy and Problems." Address, Transvaal Municipal Congress, Potchefstroom, 4th October, 1927.

"Local Authorities and the Public Health." Address, Cape Municipal Congress, Somerset Strand. 5th April, 1928.

"The Position in the Union as regards General and Midwifery Nursing." Address, Annual Meeting, King Edward Order of Nurses, Capetown, 12th June, 1928.

Sir E. N. THORNTON, *Assistant Health Officer*—

"The need for a Native Subordinate Nursing Service in South Africa." Address, South African Nursing Congress, Johannesburg, January, 1928. (*South African Nursing Record*, April, 1928).

*Dr. G. A. PARK ROSS, *Assistant Health Officer*—

"A Plea for Cooler Clothes." Address, Durban Rotary Club.

"New Methods for the Treatment of Distillery and Sugar Mill Effluents in South Africa." Addresses, Society of Sugar Technologists, Durban, February, 1928, and South African Health Officials' Congress, Durban, June, 1928.

"Methods of Purification and Disposal of Waste Waters from Distilleries and Sugar Factories applicable to South African Conditions." Jointly with Mons. de Froberville. (*International Sugar Journal.*)

"Purification of Residuary Water." Enquiry in France and Scotland. (Supplement to the weekly circular of the Central Association of Sugar Manufacturers of France, No. 2044, 27th May, 1928.)

Dr. E. H. CLUVER, *Assistant Health Officer*—

"Ankylostomiasis: Occurrence and Possibility of Spread in the Union of South Africa." South African Medical Congress, Bloemfontein, March, 1928. (*Journal of the Medical Association of South Africa*, 23rd June, 1928.)

"The Medical Practitioner's Place in the Local Government and Health Administration of South Africa." Public Health Section, South African Medical Congress, Bloemfontein, March, 1928. (*Journal of the Medical Association of South Africa*, 25th August, 1928.)

"The Health of the Farmer." (*Farming in South Africa*, October, 1927.)

"The Plague Menace at the Cape." Address, Womens' Municipal Association, Capetown, 20th March, 1928.

"Tuberculosis Prevention." Address, The Afrikaans Christian Womens' Association Health Week, Paarl, 30th May, 1928.

W. POWELL, *Chief Rodent Inspector*—

"Plague in South Africa." November, 1927. (In respect of this paper Mr. Powell was awarded the gold medal presented by His Worship the Mayor of Johannesburg for the best paper on a public health subject written by a member of the Health Officials' Association of South Africa.)

3. *Health Publicity and Educative Work.*—The following pamphlets and leaflets have been compiled, published and distributed by the Department, those marked with an asterisk having been issued during the past year. Pamphlets or leaflets of which revised editions have been published are omitted from the list:—

"Senecio Disease." (Warning notice.) No. 166 (Health).
"Food and Health." No. 194 (Health).
"Directions for the Prevention and Treatment of Malaria." No. 198 (Health).
"Typhus or Louse Fever." No. 217 (Health).
"Anthrax." No. 239 (Health).
"Venereal Diseases: Their Prevention and Treatment." No. 248 (Health).
"Instructions to Persons suffering from Gonorrhoea." No. 249 (Health).
"Instructions to Persons suffering from Syphilis." No. 250 (Health).
"Poisoning by 'Stinkblaar' or Thorn Apple (*Datura Stramonium* and *Datura Tatula*)." (Warning notice.) No. 256 (Health).
"Typhus or Louse Fever." (Supplementary memorandum.) No. 258 (Health).
"Sleeping Sickness." (Warning notice.) No. 262 (Health).
"Smallpox: Duties and Powers of Local Authorities under Public Health Act, and procedure to be followed in dealing with outbreaks." No. 276 (Health).
"Directions for the Performance of Public Vaccination." No. 279 (Health).
"How to Prevent Consumption." No. 284 (Health).
"Directions for Consumptive Persons." No. 285 (Health).
"Dagga Smoking and its Evils." No. 289 (Health).
"Plague: A Brief Account of its Symptoms, Clinical Diagnosis, Morbid Anatomy and Treatment." (Drs. D. C. Rees and J. A. Mitchell.) No. 293 (Health).
"Measures against Plague." No. 306 (Health).
"Plague: Its Control, Eradication and Prevention." No. 316 (Health).
"Plague and its Cause and Prevention." No. 317 (Health).
"Rodents: Description, Habits and Methods of Destruction." (W. Powell.) No. 321 (Health).
"Fly-proof Latrines for Coloured Persons." (Dr. G. A. Park Ross.) No. 334 (Health).
*"Houseflies: Their Life-history, Destruction and Prevention, and their Influence on Sanitation and Health." No. 335 (Health).
"Bilharzia (Human Redwater) Disease." No. 339 (Health).
"Snake-bite and its Treatment." No. 348 (Health).
"Tuberculosis: Summary of Causes and Preventive Measures." No. 352 (Health).
"First Measures in Malarial Prevention for Farmers and Settlers," together with illustrated wall poster, "Danger of Mosquitoes." (Drs. G. G. Hay and G. A. Park Ross.) Published jointly with the South African Red Cross Society (Transvaal). No. 356 (Health).
"Instructions to Native Patients suffering from Syphilis or Gonorrhoea." (In Zulu, Sixosa, Sesuto and Sechuana.) No. 358 (Health).
"Malaria Catechism." No. 360 (Health).

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* Dr. Park Ross was in Europe on vacation leave from 27th June, 1927, to 3rd December, 1927, during which period he made enquiries and inspections in France and Scotland into the methods of disposal of sugar mill and distillery effluents.

*" Influenza." No. 363 (Health).
*" Typhoid or Enteric Fever : Its Causes, Spread and Prevention in South Africa." No. 365 (Health).
*" Care of the Teeth and Prevention of Dental Disease in Children." No. 368 (Health).
*" Leprosy in the Transkei." No. 372 (Health).
*" Catechism about Typhoid or Enteric Fever." No. 378 (Health).
*" Plague danger in Cape and South-Western Districts : Measures and Procedure in Event of Outbreak." No. 380 (Health).

The following " Health Notes " were published in the Press; those marked with an asterisk being published during the year:—

" Malaria."
" Bilharzia."
" Rats and Human Plague."
" South African Hotels."
" Child Welfare."
*" Further Note on South African Hotels."
*" Food and Health." No. 1.
*" Food and Health." No. 2.
*" Food and Health." No. 3.
*" Teeth and Mouth Hygiene." No. 1.
*" Teeth and Mouth Hygiene." No. 2.

Three pamphlets on Leprosy, published by the Indian Council of the British Empire Leprosy Relief Association, were distributed to all magistrates and district surgeons in the Union:—

" Leprosy: Diagnosis, Treatment, and Prevention," and " Popular Lecture on Leprosy," by Dr. E. Muir.
" What the Public should know about Leprosy."

The revised and enlarged edition of Dr. W. A. Reid's handbook on " Sanitation and Public Health " in English and Afrikaans, prepared in consultation with this Department, the Afrikaans version being by Dr. W. A. Murray, Assistant Health Officer, has been completed and published by Messrs. Juta and Company, Capetown. The book, which comprises 500 pages and 108 illustrations, has been compiled on simple and practical lines and with special reference to South African problems and requirements.

Although primarily designed for the information and use of sanitary inspectors, it serves as a handy reference book for the health officer, and might with advantage be read and studied by members of every local authority and health committee. Under agreement with the publishers, and in virtue of a substantial Government grant, it is sold at the low price of ten shillings per copy—English or Afrikaans.

In 1926 a grant from departmental funds was made to the Swiss Mission towards the cost of printing and publishing in Shangaan and Thonga a simply-worded booklet on hygiene compiled by the Rev. A. Jacques. This booklet is widely read by Natives speaking the languages mentioned. The preparation of a Sesuto version is under consideration.

During the year the Department, jointly with the Transvaal Red Cross Society, organized and financed a lecture tour on malaria in the districts of the Transvaal chiefly affected, by Dr. Labuschagne with a Red Cross motor van and cinema apparatus. Series of illustrated lectures at selected centres in connection with plague by Mr. Austin Roberts and Mr. F. W. FitzSimons was also arranged and financed by the Department.

4. *Laboratories and Medical Research.*—

TABLE D.—PATHOLOGICAL LABORATORIES: ANALYSES AND EXAMINATIONS: YEAR ENDED 30TH JUNE, 1928.

Particulars.	Laboratories.		South African Institute for Medical Research.
	Capetown.	Durban.	
Specimens examined for Government Departments—			
Agriculture	11	33	—
Customs and Excise	6	3	9
Defence	146	106	2,654
Finance	—	—	—
Interior (Mental Hospitals, etc.)	376	429	322
Justice	—	219	1,353
Justice (Prisons)	230	515	434
Mines and Industries	—	2	—
Mines and Industries (Miners' Phthisis)	—	—	25,563
Native Affairs	—	—	—
Posts and Telegraphs	75	—	—
Public Health (including Leper Institutions)	4,969	3,828	16,238
Public Works	—	5	—
South African Railways and Harbours	128	13	—
Other Government work	3	—	448
General Hospitals (Provincial)	316	10,854*	20,295
Local Authorities	10,170	3,260	4,286
Medical Practitioners	5,910	6,135	6,245
Members of the Public	—	36	—
Department of Education (Provincial)	—	214	—
Other Governments or Administrations	—	—	41
Others	185	—	7,372
TOTAL	22,525	25,652	85,260
Manufactures and Issues—			
Autogenous vaccines	44	104	1,474
Bacterial vaccines (stock) c.c.	8,200	—	930,076
Tuberculin dilutions	—	—	247
Sera (various) c.c.	—	—	304,791
Anti-rabic vaccine c.c.	—	—	—
Bulgarian milk cultures bottles	—	—	306
Insulin tubes	—	—	2,368
Smallpox vaccine (calf lymph) (prepared at Vaccine Institute, Rosebank) tubes	1,562,200	—	—
Attendances at courts of justice by members of staff	5	26	9
Total days' absence entailed by such attendances	4	40	19

The work of the Government Laboratories at Capetown and Durban and that carried out at the cost of Government in the South African Institute for Medical Research, Johannesburg, has been rapidly increasing during recent years, and last year was almost exactly double what it was during the year ended June, 1924. The increase has severely strained the resources—both as regards staff and accommodation—of the laboratories at Capetown and Durban. Attention has been called in previous annual reports to the utterly unsuitable and inadequate nature of these buildings and the pressing need for better accommodation at both centres. During the year, however, the Government purchased from the University of Capetown, for use as a laboratory and offices by this Department, the Anatomy and Physiology Block of the University buildings at the top of Government Avenue (corner of Government Avenue and Orange Street), together with three detached buildings on the same piece of ground; the latter will be converted into chemical laboratories for the Department of Agriculture, and in which the chemical work of this Department, including that in connection with the adulteration of food and drugs, also medico-legal work of a chemical nature, will be carried out. Thus the convenient juxtaposition of the Health and Chemical Laboratories at Capetown, which has so far obtained with the old laboratory buildings in Parliament Street, will be continued.

The Anatomy and Physiology Block is a spacious and well-constructed building, and, with certain internal alterations which are now in hand, will admirably and permanently meet the needs of this Department in Capetown.

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* A large proportion of this work is in connection with the Addington Hospital, Durban, and is done in conjunction with Dr. F. R. Johnstone, bacteriologist to the hospital.

Last year, efforts to secure provision for a new Health laboratory and offices at Durban were at last successful, and the necessary funds were provided on the Loan Estimates. The site of the old buildings on Currie Road, Berea, is rather inaccessible and remote from the Point, harbour areas, and hospitals, but efforts repeatedly made during the past eight or ten years to secure a more convenient site proved unsuccessful. It was therefore decided to demolish the present buildings (with the exception of a small section in brick with tiled roof of comparatively recent construction) and to re-build on the present site. The scheme—which provides very suitable and adequate accommodation, both laboratory and office—is now well in hand, and should be completed before the end of 1928.

The South African Institute for Medical Research has under consideration a scheme for the extension of the institute buildings on Hospital Hill, Johannesburg, so as to increase the accommodation available for its "Routine Section," and another scheme for establishing a branch laboratory at Port Elizabeth. At present materials for laboratory examination from the Cape Midlands, Eastern Province, and Transkei have to be sent to Johannesburg or Capetown; many specimens are spoilt during the long transit, and in others (throat swabs in suspected diphtheria, for instance) the inevitable delay makes the examination of little practical value. A laboratory at Port Elizabeth in which health, hospital and medical specimens can be examined, will be a great step in advance.

Dr. G. W. Robertson, who had been in charge of the Capetown Laboratory since 1899, and of the Rosebank Vaccine Institute since 1903, retired on superannuation in November, 1926, but had been temporarily retained on a part-time and consultant basis, finally retired at the end of May, 1928. The Department owes a great deal to his ability as pathologist and bacteriologist and to his capacity for organization and administration. He was succeeded at Capetown by Dr. W. F. Rhodes, previously in charge of the Durban Laboratory, whose place there has been filled by the appointment of Dr. D. H. S. Annecke.

(2) *Medical Research.*—Reference is made elsewhere in this report to the scheme of research still in progress by the South African Institute for Medical Research and this Department regarding plague, and by the Institute, the Chamber of Mines, and the Government (Departments of Health and Native Affairs with the Deferred Pay Fund Board) regarding tuberculosis, especially in connection with mine Native labourers.

During the year, at the request of the Department of Justice and the Government of Southern Rhodesia, and through the good offices of the Director, South African Institute for Medical Research, an investigation by Dr. Steuart, Radiologist to the Johannesburg Hospital, regarding the fixing of age for medico-legal purposes of South African Natives, coloured persons, and Asiatics was arranged for. After preliminary investigation, however, Dr. Steuart reported that he was convinced that the age variation in individuals of the completion of ossification of the bones is such that X-ray examination would be practically valueless. Certain data obtained by him suggest that in females early menstruation may sometimes be associated with precocious ossification. The proposed systematic investigation has consequently been abandoned, but Dr. Steuart will continue the inquiries as opportunities offer.

On 9th April, 1927, representatives of the Department attended by invitation a conference convened by the Principal of the University of Capetown to consider the question of medical research. It was stated that the University now has ample laboratory accommodation at the new Medical School, Groot Schuur, and is anxious to use the facilities to the best advantage. The Secretary for Public Health strongly supported the proposal, and recalled that medical research was one of the original objects of the Capetown Medical School: he pointed out that the Capetown University was favourably situated for research into problems such as leprosy, tuberculosis and dietetics (human bio-chemistry). Some of the professors present deprecated the establishment of any special research organization or schemes, but emphasized the desirability of encouraging research by the individual professors and other officers concerned for which facilities should be provided. It was decided to adjourn the conference for the attendance of Sir Spencer Lister, Director of the South African Institute for Medical Research, Johannesburg. The adjourned meeting took place on 27th June, 1927. Sir Spencer Lister expressed the view that University medical research should be purely scientific and unfettered by conditional grants or by directive or advisory committees, and that University professors and officers should have full freedom and every facility and encouragement to follow their own bent as regards research subjects and objects. These views were supported by several of the University representatives present. The Secretary for Public Health pointed out that the policy proposed would certainly be the ideal one, and he would support it if we were in Utopia and ample funds were available. If, however, it was necessary to appeal to the public, local authorities, and the Government for special funds for the purpose, then he thought it essential that a scheme and its special objects should be formulated and mapped out and arrangements made to ensure co-ordination and active prosecution of the investigations; it was much easier to raise funds for such a purpose if tangible objects and possibilities were indicated. He suggested the establishment of a Medical Research Committee to include the Principal of the University and the professors concerned, representatives of the Government, the Capetown Municipality, and other public bodies to consider the whole matter, explore the possibilities, and secure at least the nucleus of a Research Fund.

Sir Carruthers Beattie, Principal of the University, said he felt certain that if definite research possibilities were held out, funds would be forthcoming. Some funds for such purposes had already been made available, but no proposals had, so far, been put forward by the professors concerned and no money had been spent. He supported the proposal, which, after further discussion, was agreed to. The Department has no information as to further progress or action in the matter.

(3) *Research into " Poor White " Problem.*—During 1927 the President and Secretary of the Carnegie Corporation of New York visited South Africa and became interested in our " Poor White " problem. As a result of a report submitted by them on their return the Corporation donated the sum of £4,000 to be spread over a period of two years for the purpose of financing research work into this problem in South Africa. This research was to be carried out under the guidance of a special committee nominated by the Research Grant Board of the Department of Mines and Industries and by the authorities of the Dutch Reformed Church of South Africa. A representative committee or " Joint Board " was accordingly constituted to undertake this work, and representatives of the Union Departments of Education, Public Health, Agriculture, and Native Affairs were co-opted by it. The investigation has been divided into five sections—Economic, Public Health, Educational, Psychological, and Sociological—and each of these has been allotted to a chief research worker for intensive study and report to be completed by December, 1930. These research workers are to keep in close touch with one another and with the Joint Board.

The Secretary for Public Health represents this Department on the Joint Board, and Dr. W. A. Murray, Assistant Health Officer, has been appointed Chief Research Worker in the Health section. It is not considered that unfavourable health conditions constitute one of the prime factors in the causation of " poor whitism," but in certain localities such factors as malnutrition due to insufficient food or a low grade and monotonous diet, malaria, bilharzia, and other diseases are no doubt aggravating and contributory causes.

The investigation is one of great and, indeed, national importance. It is estimated that there are in the Union approximately 120,000 " poor whites "—fourteen per cent. of the total European population—who have sunk below the economic level of the more advanced Natives.

5. *Port Health Administration.*—The following table summarizes health work at the Ports of the Union during the year:—

TABLE E.—PORTS OF THE UNION: HEALTH ADMINISTRATION DURING THE YEAR ENDED 30TH JUNE, 1928.

Particulars.	Capetown.	Durban.	Port Elizabeth.	East London.	Mossel Bay.	Knysna.	Port St. Johns.	Simonstown.	Total.
Vessels dealt with......	974	1,407	940	663	176	32	51	57	4,300
Cases of infectious or communicable diseases dealt with...........	137	219	1	—	—	1	2	—	360
Vessels involved........	54	111	1	—	—	1	2	—	169
Disinfections—									
Vessels..............	24	16	1	—	—	—	—	—	41
Second-hand clothing and other articles..	25	2,647*	6,242	—	—	—	—	—	8,914
Bales of mixed articles	30	26	3	—	—	—	—	—	59
Rats trapped on vessels and shore...........	4,669	2,063	6,888	765	66	—	—	—	14,451

* In addition, the personal effects of 1,928 Indian and Coloured passengers were disinfected.

The Port Health staff at each port exercises supervision in regard to foodstuffs landed at the port and, subject to the relative regulations and departmental instructions, condemns or destroys articles found to be unfit for human consumption. Amongst the articles so condemned during the year were 400 cases of tea, 6 barrels of potatoes, 8 cases of mango chutney, 27 cases assorted minced meats, 50 cases herrings and tomato sauce, 2 consignments of wheat, considerable quantities of tinned salmon, anchovies, Norwegian sild, etc.

Of the arriving vessels requiring special measures, the following may be mentioned:

British India mail steamer " Khandalla " arrived Durban, 25th January, 1928, from Bombay via East Coast ports, having had on board during the voyage two cases of smallpox in Indians; cases were landed at Zanzibar. The contacts, numbering 110, were detained in the Quarantine Station, Salisbury Island, until the expiration of the incubation period. The vessel was disinfected, the crew and passengers vaccinated, and no further cases occurred.

Union-Castle intermediate steamer " Gaika " arrived at Durban direct from Mauritius, 14th February, 1928, with a case of typhus fever in a European first-class passenger, who was landed at Durban; diagnosis confirmed by laboratory examination; no further cases occurred.

Union Government steamer "Aloe " arrived Durban direct from Banbury, Australia, on 12th May, 1928, with a number of the crew suffering from typhus, probably contracted at Banbury. Patients removed to hospital. Ship fumigated and crew deverminized.

Japanese immigrant steamer " Hawaii Maru " arrived Durban, 22nd May, 1928, and reported the occurrence on the voyage from Japan of an outbreak of cholera, which was dealt with at Singapore. The ship was given restricted pratique and suitable precautionary measures taken. She had no passengers for Durban, but carried 700 deck passengers for South American ports.

H.M.S. " Lowestoft " arrived at Capetown from West Coast ports on 11th January, 1928, with 27 members of the crew ill. Before arrival influenza had been suspected, but investigation by this Department's officers proved that the cause was malaria. Suitable measures were taken.

Active measures are taken at each port to keep down the rat population and to guard against the landing of rats from vessels. All vessels arriving from overseas are carefully examined for rat infestation. Japanese ships have been acquiring an unenviable reputation at Union ports for rat infestation—in one such ship 42 rats were caught by the Port Health staff in one night. Representations regarding the matter have been made to the Japanese authorities.

Good progress has been made by the Railways and Harbours Administration in rat-proofing goods sheds and other structures in the port area of Table Bay. The two terminal ports, Capetown and Durban, are now in a fairly satisfactory position in this connection, but the same cannot be said of Port Elizabeth and East London, where, although the Port Health staff succeeds in keeping down the rat population, there are very ample facilities for rat infestation and multiplication; also, the sanitary provision is very unsuitable and inadequate. Strong representations have been made to the Railways and Harbours Administration with a view to the early remedy of these defects.

6. *Adulteration of Food and Drugs.*—The following table shows the action taken in this connection during the year:—

TABLE F.—ADULTERATION OF FOOD AND DRUGS, YEAR ENDED 30TH JUNE, 1928.

Place.	Samples taken.	Samples Analysed.	Samples found Inferior, Deficient or Adulterated.	Prosecutions.	Convictions.	Remarks.
Ports of Union............	87	87	9	—	—	Importers warned.
Cape Province............	2,389	2,357	136	31	24	A large proportion of offences, specially first offences, are dealt with by warning notices.
Natal Province............	220	220	55	52	43	
Transvaal Province........	1,277	1,277	106	—	—	Adulteration laws administered by municipalities within their areas.
Orange Free State Province	127	127	13	13	8	Result of proceedings in three cases not yet reported.
UNION.............	4,100	4,068	319	96	75	

The Food, Drugs and Disinfectants Bill was re-introduced to the House of Assembly last Session, read a first and second time, and referred to a Select Committee. The evidence given before that Committee fully bore out the statements made in previous Annual Reports regarding the prevalence of adulteration and misdescription and the urgent need for reform. The publication of the Report of the Committee caused something of a public sensation, and has already had wholesome results in several directions. Unfortunately it was only ready for submission to the House shortly before the close of the Session, so no further progress was made. There is, however, every reason to hope that the Bill will become law during next Session.

7. *Health of Natives on the Witwatersrand Gold Mines.*—A general inspection and survey of health conditions among Natives employed on the Witwatersrand Gold Mines was made by one of the Assistant Health Officers of the Department during November and December, 1927. The health services of considerably more than half of the industry are well organized and a high degree of efficiency has been reached; this applies more particularly to medical and health services and to housing and feeding. The more recently erected compounds provide for complete separation of sleeping Natives from each other on cold-proof concrete bunks, thus reducing to a minimum the possibility of spread of respiratory and vermin-borne infections. The rations in this portion of the industry are also not only amply adequate, but vitamin deficiency is effectively avoided by the provision of fresh vegetables, germinated beans, etc.

The mine managements concerned are themselves endeavouring to further improve conditions—an economically sound endeavour, as all recent investigations into industrial hygiene show the greater labour efficiency resulting from improved conditions as regards housing, feeding and care of the workers.

In the remaining part of the gold mining industry, Native health conditions are in various respects unsatisfactory. Compounds are often dilapidated, bunks are of wood, and almost impossible to keep vermin-free, and in compounds of this description there is rarely any adequate separation of the sleeping Natives. The rationing was also found in many cases to be unsatisfactory, more particularly in regard to the provision of vitamins. Such vitamin deficiency, though rarely sufficient to actually produce diseases such as scurvy, must result in a considerable lowering of vitality and of resistance to disease infections.

Of recent years there has been an increasing amount of illness among the Natives, particularly from pneumonia. For this, various causes have been assigned. It cannot, however, be doubted that improvement in the conditions described will tend to lessen considerably the incidence of the disease. The first and most important requirement in this section of the industry is a better organized medical and health service for the Natives, but extensive structural alterations and reorganizations in several directions are also necessary.

V.—INFECTIOUS, COMMUNICABLE, AND PREVENTABLE DISEASES.

1. *Notifications.*—The following table shows the notifications of infectious diseases by medical practitioners during the year, the total for the previous year being inserted for comparison. It is to be noted that many cases of such diseases, especially in Natives, are never seen by a medical man, and consequently are not notified:—

TABLE G.—NOTIFICATIONS OF INFECTIOUS DISEASES BY MEDICAL PRACTITIONERS DURING THE YEARS ENDED 30TH JUNE, 1927, AND 30TH JUNE, 1928.

Disease.	Year ended 30th June, 1927.	Year ended 30th June, 1928.										
	Union.	Union.	Cape Province, excluding Transkei.		Transkei.		Natal.		Orange Free State.		Transvaal.	
	Total.	Total.	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.
Anthrax	48	43	16	10	—	—	—	2	1	6	7	1
Diphtheria	1,342	1,616	570	172	10	5	270	39	117	42	359	32
Encephalitis, Infective	56	54	10	10	—	1	—	—	12	11	2	8
Enteric or Typhoid Fever	4,018	5,787	1,086	1,247	18	80	175	337	391	309	887	1,257
Erysipelas	232	303	85	50	—	—	24	2	14	1	57	70
Glanders	—	—	—	—	—	—	—	—	—	—	—	—
Leprosy	97	103	3	25	—	1	—	31	1	7	—	35
Malta Fever	3	10	7	—	—	—	—	—	1	—	—	2
Meningitis, Epidemic Cerebro-Spinal	297	978	107	463	1	—	11	7	7	13	76	293
Ophthalmia, Gonorrhoeal	23	33	5	11	—	—	—	2	4	—	8	3
Ophthalmia, Neonatorum	237	262	36	168	—	—	8	7	6	8	21	8
Plague (for complete list of cases and deaths see Table K)	43	12	1	1	—	—	—	—	—	9	—	1
Poliomyelitis, Acute	21	32	13	8	—	—	2	1	2	1	5	—
Puerperal Fever, including Puerperal Sepsis	219	264	47	89	—	—	4	21	9	5	64	25
Rabies	1	—	—	—	—	—	—	—	—	—	—	—
Scarlatina or Scarlet Fever	965	3,183	948	43	4	—	96	1	348	8	1,722	13
Smallpox [for complete list of cases and deaths see Table L (i)]	126	24	4	8	1	2	—	2	—	6	—	1
Trachoma	28	32	6	22	—	—	2	1	1	—	—	—
Tuberculosis	5,875	5,491	408	2,354	—	440	75	434	32	90	59	1,599
Typhus Fever (for complete list of cases and deaths see Table O)	686	941	19	171	1	557	33	107	3	33	1	16
TOTALS	14,317	19,168	3,371	4,852	35	1,086	700	994	949	549	3,268	3,364

2. *Ankylostomiasis* (*Hookworm Disease*).—An investigation into the occurrence and possibility of spread of ankylostomiasis in the Union was made during the year. For this purpose the data which had been collected on the Witwatersrand were analysed. The bulk of the Native mine workers infected come from Portuguese East Africa, a region which has long been known to be infested with hookworm. Of the Natives recruited in the Union found to be infected, the majority appeared to have contracted the disease as a result of work on the mines. A few, however, arrived on the mines in an infected condition, coming from Zululand, Eastern Cape Province, or Northern Transvaal. The Zululand cases probably indicate the tailing off of the heavily-infested Portuguese coastal area immediately to the north. The Eastern Cape and Northern Transvaal cases are so few as to be of no great significance.

Routine treatment with carbon tetrachloride of all Native labourers from the East Coast arriving at the mines was attempted with the object of freeing them from the infection but the results were in certain respects unsatisfactory. Such wholesale treatment was, therefore, abandoned, and only those actually found infected are now suitably treated.

Careful examination of European miners on the Rand showed that 210 of them were infected, and inquiries pointed to local infection in different mines—all of the deep-level class. Amongst them were 52 students attending the Government Miners' Training School, who had also become infected while underground. By means of suitable treatment all of these cases have been freed of the parasites, and suitable preventive measures in the mines concerned have now reduced to a minimum the risks of further infection. This is supported by the fact that during the last few months (April, May, and June, 1928) practically no new cases could be detected.

In order further to investigate the possibility that ankylostome infection may be one of the causes of anaemia and weakness occurring amongst indigents in the Northern Transvaal, a further series of specimens from selected schools was forwarded to the South African Institute for Medical Research by school medical officers. None of these were found to contain hookworm ova, but most of them showed evidence of ascaris (round worm) infection.

A detailed statement of the position regarding hookworm disease in the Union was published in the *Journal of the Medical Association of South Africa* of 23rd June, 1928, and reprinted in pamphlet form by the Department.

In parts of the Union liable to infestation (i.e. where the climate is warm and moist throughout the year, and in deep gold mines), the preventive measures are—good latrine construction and supervision; weekly deposition of common salt on soil liable to infestation, and the search for and treatment of infected persons.

3. *Bilharziasis* (*schistosomiasis*).—Efforts to enlighten and educate the public as to the cause and methods of bilharzial infection and means of cure have been continued. Test treatments carried out with the preparation " Emetine periodide " given by the mouth have proved disappointing, it being found that the total dosage required to effect a cure is sometimes three or four times that recommended by the manufacturers. As this drug is extremely expensive, the cost of treatment with it becomes almost prohibitive.

During the past two years an experiment on a small scale in the " mass treatment " of school children suffering from the disease was carried out with considerable success by the school medical officers of the Transvaal Education Department. From the Annual Reports for 1926 and 1927 of the Transvaal Education Department the following information has been extracted:—

In August and September and December, 1926, 71 scholars from the District of Zeerust, who were suffering from bilharziasis and unable to pay for treatment, were collected and treated in the village for several weeks by a school medical officer and the district surgeon. Accommodation and meals were arranged for by the Education Department. At the August-September " camp " 27 children were treated: about half by means of *rectal* injections of antimony tartrate, while the remainder received *intravenous* injections of the same salt. After a fortnight's treatment it was found that the former class showed no improvement, while the urines of those receiving intravenous treatment were practically free from blood and ova. Rectal treatment was, therefore, abandoned, and all were given intravenous treatment. At the end of the two periods of treatment (August-September and December-January) the urines of 54 out of 71 children (or 76 per cent.) were found free of blood and ova, while the remainder either left before completion of the course or still showed signs of the disease. Although the results were not as satisfactory as had been hoped for, valuable experience in technique and in organization had been gained.

In December, 1927–January, 1928, a " camp " was organized on better lines at Rustenburg, where 66 school children were treated. These pupils came from the district schools, where they had been diagnosed as cases of the disease by a school medical officer. Practically all were found to be markedly ill-nourished and cachectic, and many had malaria as well. All were poor. From various causes, 15 of those who began treatment left before the course was completed (eight left of themselves, in six others treatment was stopped owing to unfavourable symptoms: one died). Ages varied from 8 to 20 years, and the " course " extended over 33 days.

The initial dose for all was 1 grain of sodium antimony tartrate (B.W. & Co.'s Soloids), being increased in those between 8 and 13 years by ¼ grain daily to a maximum does of 2¼ grains. In those aged from 14 to 20 years the daily dose was increased by ½ grain to a maximum of 2½ grains. A total of 25-30 grains of the drug was given to each of the 51 children who completed the course, and at the end it was found that 46 (i.e. roughly 92 per cent.) showed neither blood nor ova in the urine, but five still showed living ova; in these five, subsequent continued treatment was successful. No information as to results of re-examination of these children at a later date is available.

Toxic symptoms (e.g. coughing, vomiting, abdominal pain, evanescent rash, toothache, and gingivitis) were noticed in the majority of the patients, especially towards the end of the period of treatment, due to the cumulative action of the drug. The malnutrition and cachexia from which so many of the children suffered were considered to account for the relative severity of these symptoms.

Apart from the satisfactory results of the treatment of the boys sent to the " camp " the movement had important and useful educative effects on the people in general in connection with both the prevention and treatment of the disease.

The success of this " camp," due largely to the enthusiasm with which the various camp officials (all voluntary workers from the Educational Department with the exception of three local medical practitioners, who also gave their services free), has encouraged the Education Department to seek the co-operation of the Union Health Department and of the South African Red Cross Society (Transvaal Branch) with a view to co-operation and organization of effort and resources in an active campaign against this debilitating disease from which thousands of school children in Natal and the Transvaal Province suffer. Arrangements are being made for a round-table conference to discuss the whole matter, with a view to further co-ordinate action. There is reason to believe that in many districts of the Transvaal prevalence of the disease has greatly increased during the past few years.

A matter which merits thought and planning is the need for providing bilharzia-free swimming pools or baths for children throughout the infected areas of the Transvaal and Natal. Publicity is necessary to bring this to the notice of local authorities concerned, and it is no less necessary to remind principals of farm schools and farmers of the danger of infection, or of re-infection after a curative course of treatment, which children run when bathing in rivers or pools in infected areas. A safe swimming pool can often be easily arranged on a farm with little additional cost in connection with a tank or reservoir fed by an existing windmill. In river pools this is less easy, but it may still be possible to divert water into a pool or dam, free from vegetation or snails, where the water could be rendered safe by addition of a chemical such as Copper sulphate or by letting it stand for two days or longer before being used.

4. *Diphtheria.*—The prevalence of diphtheria has been steadily increasing throughout the Union in recent years. Notifications for the present year amounted to 1,616, an increase of 274 over the previous year's total.

A distressing feature of the disease in rural areas is the inadequacy of facilities for proper treatment. Added to this is the great difficulty, or even impossibility, of isolating cases in their own homes, and preventing visits by neighbours. In many cases the only practical method of preventing the dissemination of the disease over wide areas is prophylactic inoculation of susceptible contacts with anti-toxin, and this procedure has been widely employed. In the towns, where better facilities for treatment and isolation are available, the problem is not so acute. Nevertheless, the number of fatal cases, the economic loss, the interference with the education of children of school-going age, and the distressing sequelae often associated with the disease are such as to call for more active measures in the prevention of the disease.

Hitherto the use of the Schick test followed by active immunization has been limited by the difficulty or impossibility of obtaining toxoid-antitoxin preparations the stability of which, under the climatic conditions pertaining in the Union, could be relied upon, but these obstacles have now been overcome.

As a result, and stimulated by the prominence given to the subject at the last South African Medical Congress, local authorities throughout the Union are showing increased interest in the active immunization of susceptible (Schick-positive) children. Preliminary test schemes are in progress in Johannesburg, Durban and Capetown Municipalities, whilst it is understood the Transvaal Education Department has under consideration a scheme for applying the Schick test to all school children whose parents notify the school medical officer of their consent; positive reactors to be subsequently immunized.

5. *Enteric or Typhoid Fever.*—Compared with the number of cases notified last year, the present year shows a considerable increase, viz., 5,787 as against 4,018 last year. The increase affects all the Provinces.

It is disappointing that enteric fever, the " filth " disease *par excellence*, continues to be one of the most serious causes of morbidity and mortality in the Union. As its prevalence is very often a direct result of grave insanitary conditions obtaining in an area, it should be considered by local authorities as a serious reflection upon their sanitary administration. Few local authorities appear to recognize the grave danger to the community of excessive fly prevalence, and consequently to take adequate measures to prevent fly-breeding in manure and other filth, or to prevent fly access to nightsoil pails. For every large water-borne or milk-borne epidemic in the Union there are at least 50 centres where the disease remains endemic almost all the year round through fly carriage of infection, with a far larger total of victims.

The following table shows the notifications of enteric or typhoid fever in certain centres during the year, *beginning with those in which the incidence rate has been the highest*:—

TABLE H.—ENTERIC OR TYPHOID FEVER: NOTIFICATIONS AND INCIDENCE IN CERTAIN LOCAL AUTHORITY AREAS DURING THE YEAR ENDED 30TH JUNE, 1928 (ARRANGED IN ORDER OF INCIDENCE RATE)—EXCLUDING CASES RETURNED AS IMPORTED.

Place.	Notifications.			Incidence per 1,000 of population.		
	European.	Non-European.	Total.	European.	Non-European.	All Races.
Heilbron................M.	63	44	107	40·08	28·63	34·42
Merweville..........V.M.B.	15	2	17	37·69	14·60	31·78
Nigel.................V.C.	6	73	79	6·68	33·03	30·42
Ermelo..................M.	70	53	123	29·29	28·82	29·08
Sutherland..............M.	10	6	16	18·80	21·98	19·88
Morgenzon............V.C.	3	9	12	7·44	41·86	19·42
Vrede...................M.	30	30	60	19·29	18·15	18·70
Hobhouse................M.	9	—	9	22·44	—	18·33
Van Rhynsdorp.........M.	8	9	17	12·56	28·75	17·89
Garies..............V.M.B.	6	2	8	22·39	10·10	17·17
Nylstroom............V.C.	—	17	17	—	29·11	17·14
Adelaide................M.	17	19	36	15·21	13·74	14·39
Clocolan................M.	9	17	26	7·71	20·43	13·00
De Rust............V.M.B.	10	1	11	18·80	2·82	12·42
Ladybrand..............M.	28	20	48	12·38	12·39	12·38
Porterville..............M.	13	6	19	11·82	12·47	12·02
Murraysburg............M.	10	5	15	12·32	8·98	10·96
Warden..................M.	9	3	12	11·19	9·55	10·73
Britstown................M.	9	7	16	9·41	12·68	10·61
Alice.....................M.	1	24	25	1·37	14·30	10·39
Caledon..................M.	15	15	30	9·00	11·30	10·02

Place.	Notifications.			Incidence per 1,000 of population.		
	European.	Non-European.	Total.	European.	Non-European.	All Races.
Villiers.................M.	4	5	9	6·16	18·73	9·83
Korsten............V.M.B.	35	34	69	18·56	5·25	8·25
Calitzdorp..............M.	9	5	14	7·89	8·93	8·23
Piquetberg..............M.	2	11	13	2·46	13·22	7·90
Brandfort...............M.	14	6	20	9·56	5·42	7·78
Boksburg................M.	53	231	284	4·36	9·04	7·53
Volksrust...............M.	17	8	25	7·16	7·28	7·20
Cala...................M.	6	3	9	9·57	4·48	6·94
Ficksburg...............M.	22	3	25	9·15	2·26	6·70
Parys...................M.	14	10	24	5·27	9·88	6·54
Senekal.................M.	15	2	17	9·86	1·61	6·15
Springs.................M.	2	117	119	0·37	7·85	5·87
Oudtshoorn..............M.	41	19	60	7·26	3·68	5·58
Wakkerstroom...........M.	4	7	11	4·96	5·82	5·48
Carnarvon...............M.	10	1	11	9·75	1·00	5·42
Moorreesburg............M.	9	—	9	7·19	—	5·32
Beaufort West...........M.	20	11	31	6·24	3·50	4·89
Malmesbury..............M.	15	5	20	6·36	2·73	4·77
Bethlehem...............M.	13	20	33	3·27	6·71	4·74
Steynsburg..............M.	9	1	10	6·50	1·24	4·56
Malvern........L.A. & H.B.	10	4	14	4·21	5·14	4·44
Burghersdorp............M.	5	10	15	2·63	5·77	4·13
Standerton..............M.	9	8	17	3·95	4·21	4·07
Estcourt................M.	3	5	8	3·09	4·99	4·05
Uitenhage...............M.	26	32	58	3·20	5·00	3·99
Victoria West...........M.	1	7	8	0·93	7·21	3·92
Ceres...................M.	3	8	11	2·59	4·69	3·84
Heidelberg (Transvaal)...M.	6	6	12	3·15	4·53	3·72
Klerksdorp..............M.	16	6	22	4·72	2·34	3·69
Cradock.................M.	5	20	25	1·47	5·66	3·61
Roodepoort–Maraisburg..M.	20	56	76	2·77	3·31	3·15
Riversdale..............M.	7	2	9	4·42	1·42	3·00
De Aar..................M.	4	7	11	2·61	3·13	2·92
Barberton...............M.	7	1	8	5·91	0·62	2·85
*East London............M.	8	95	103	0·43	5·34	2·83
Grahamstown.............M.	17	26	43	2·22	3·39	2·81
Robertson...............M.	11	2	13	3·97	1·08	2·81
Brakpan.................M.	8	63	71	0·95	3·59	2·73
Mafeking................M.	7	2	9	3·91	1·30	2·71
Middelburg (Transvaal)..M.	8	4	12	3·08	1·71	2·43
Kingwilliamstown.......M.	17	6	23	2·64	1·61	2·26
Krugersdorp.............M.	19	73	92	1·31	2·51	2·11
Paarl...................M.	11	17	28	1·65	2·56	2·10
Daspoort.............H.C.	7	3	10	1·89	1·86	1·88
Kroonstad...............M.	9	9	18	1·82	1·78	1·80
Sydenham......L.A. & H.B.	5	20	25	1·96	1·58	1·64
Potchefstroom...........M.	15	8	23	1·61	1·55	1·58
Germiston...............M.	22	46	68	1·33	1·73	1·57
Aliwal North............M.	5	5	10	1·90	1·30	1·55
Pietermaritzburg........M.	24	29	53	1·25	1·64	1·44
*Capetown...............M.	165	171	336	1·33	1·50	1·41
Ladysmith (Natal).......M.	9	1	10	2·54	0·28	1·41
*Port Elizabeth..........M.	47	25	72	1·60	1·16	1·41
Johannesburg............M.	136	253	389	0·81	1·91	1·29
Stellenbosch............M.	2	7	9	0·45	1·94	1·12
*Bloemfontein...........M.	32	16	48	1·60	0·69	1·11
Pretoria................M.	53	17	70	1·25	0·67	1·03
Benoni..................M.	16	30	46	1·07	0·90	0·96
Innesdale.............V.C.	9	—	9	1·26	—	0·90
Graaff-Reinet...........M.	3	5	8	0·66	1·05	0·86
Durban..................M.	44	31	75	0·82	0·64	0·74
Queenstown..............M.	1	8	9	0·16	1·05	0·66
Kimberley.........B. of H.	11	12	23	0·68	0·56	0·61
Mayville.......L.A. & H.B.	—	8	8	—	0·75	0·61

M.	... Municipality.
V.M.B.	... Village Management Board.
V.C.	... Village Council.
H.C.	... Health Committee.
L.A. & H.B.	...Local Administration and Health Board.
B. of H.	... Board of Health.

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* Rates calculated on population as at census, May, 1926; others calculated on European population as at census, May, 1926, and non-European population as at census, May, 1921.

As usual, in the larger towns the incidence rates have been low, but in several of the smaller urban centres the rate was excessively high, due to grave sanitary defects in those centres.

In *Heilbron*, Orange Free State, an " explosive " outbreak was reported in January, 1928, affecting 63 Europeans and 44 non-Europeans. On investigation by a Union Assistant Health Officer the cause was found to be direct specific pollution of the public water supply while alterations to the waterworks were being carried out. The carrier of the infection was one of a gang of Natives employed at the main municipal borehole. Prompt measures (letting the infected supply run to waste and then chlorinating the subsequent supply) brought the epidemic to a speedy close. A temporary hospital for Europeans was opened in town and, by arrangement with the Church authorities, a Native church building in the location was temporarily utilized as an emergency hospital for Native patients and skilled nursing was provided for them. About 20 deaths were recorded in all. Prophylatic inoculation and oral administration of anti-typhoid vaccine were made freely available to all, and this further assisted in limiting the spread. A vigorous anti-fly campaign was also carried out by the municipality to minimize the risk of spread by flies.

At *Ermelo*, Transvaal, a serious outbreak occurred between August and December, 1927, affecting in all 70 Europeans and 53 non-Europeans. Investigation by a Union Assistant Health Officer traced the original cause of the outbreak to direct pollution of one of the springs supplying the town with water. After this supply had been cut off, it was found that further cases still occurred: this latter spread was attributed to excessive prevalence of flies, abundant infective faecal material accessible to flies, and unprotected food supplies. Most of the European patients were treated in the local hospital, and for treatment of the Native cases an emergency isolation hospital was opened in the town. Free immunization by the oral method was offered to all inhabitants in December, and many availed themselves of this.

At the *Cinderella Prison, Boksburg*, a sharp outbreak occurred from January to March, 1928, involving about 60 prisoners. The cause was most probably due to infection spread by a healthy Native " carrier " employed in the kitchen, and was discovered by means of the Widal test. Removal of the " carrier " soon terminated the outbreak.

At *Vrede*, Orange Free State, an outbreak (13 Europeans and 24 Natives) took place in 1926, which was finally checked by free inoculation of the majority of the inhabitants, especially Natives, with anti-typhoid vaccine. A considerable number of the patients died. During the past year (December, 1927–March, 1928) another outbreak occurred, in which Europeans and Natives in equal numbers were affected (64 in all), and which was characterized by its extreme mildness. Only three Natives and two Europeans died, and in none of the other cases was any complication observed. This mildness was ascribed mainly to the mitigating effect of the previous immunization, which after a lapse of two years still afforded partial protection. The spread of the infection occurred in some cases directly from one person to another (e.g. from patient to untrained nurse), and in others was fly-borne. The outbreak was checked and arrested mainly by oral immunization of the inhabitants.

6. *Influenza.*—During the past year no serious epidemic of influenza was reported from any part of the Union, though extensive prevalences of " common colds " or influenza of mild type occurred in many places.

In many of these the attacks have sometimes commenced with the usual symptoms of " cold " and fever, but have ended in severe diarrhoea and enteritis—the so-called " gastric flu." In others, occasional lung complications or involvement of some of the air sinuses of the head have occurred.

The importance of the " common cold " from the point of view of the national health, the amount of suffering and temporary disablement and serious after effects which it entails to a large percentage of the population, the amount of disorganization of business and industry, and the heavy economic loss which it causes every year, are seldom realized. Recent investigations at the Rockefeller Institute and elsewhere strongly support the view that the common cold, mild and severe influenza, and virulent epidemic influenza with frequent pneumonic and other dangerous complications are all varieties of the same disease, and that the essential cause of that disease is not the organisms usually found associated therewith but an ultramicroscopic particulate infection so minute that it can pass through the pores of unglazed porcelain, and which is extremely diffusible, being dispersed for some distance in the air around an infected person by coughing and sneezing and even during speaking. The whole matter, and the question of protective measures and artificial immunization, calls urgently for further investigation.

7. *Leprosy.*—The policy of the Department in regard to leprosy has been detailed in recent annual reports, and steady progress on the lines therein indicated has been made during the year. There was no meeting of the Union Leprosy Advisory Committee during the period.

A collecting and observation depot, analogous to that which has existed for many years past at the Old Somerset Hospital, Capetown, has been established on Salisbury Island, Durban Bay. All cases passing through Durban by rail, instead of being sent on direct to the Amatikulu Institution as hitherto, will be first sent to the depot for re-examination and laboratory investigation, cases found to be active and infective being then sent on to Amatikulu, others being returned to their homes.

Temporary detention depots for leprosy patients are being provided in several districts of the Transkei and at Estcourt in Natal, and more expeditious arrangements are being made for carrying out removals to leper institutions. One of the gratifying results of the policy of discharging patients in whom the disease is no longer active or infective has been the increasing number of voluntary admissions to the leper institutions. A great deal, however, remains to be done; there are still large numbers of unreported cases in the Transkei and Northern Natal. Members of the British Leprosy Relief Association and other writers on leprosy have criticised the policy of compulsory removal and segregation, and suggested that this system should be abolished and replaced by voluntary clinics or dispensaries to which sufferers would come at intervals for treatment. This system is doubtless very useful in countries with a large proportion of lepers among the population, but in this country of vast distances, sparse population, and low incidence of leprosy, even in those districts where the disease is most prevalent, it would be quite impracticable. There is no place in the Union where a leprosy clinic or dispensary could be located which would be within reasonably easy reach of a dozen leprosy patients. It has also been suggested that mission station staffs and trained nurses should be utilized to give active anti-leprotic treatment to leprosy patients in their home districts, but the treatment of leprosy by modern methods is essentially a matter for medical men and requires special knowledge of the disease and the technique and dangers of subcutaneous and intra-venous medication.

The appointment of a special medical officer mainly or entirely for field leprosy work and investigation is much needed.

St. Raphael's Home, on the Cape Flats, near Faure, which had for some years past been used for the accommodation of the healthy children of lepers and "probationally discharged" leprosy patients, was closed on 31st January, 1928. The children had previously been sent to relatives or otherwise suitably disposed of. Of the seven cases of "arrested" leprosy then remaining in the home, one was placed with relatives (with a maintenance grant) and the remaining six were returned to Robben Island.

The following tables summarize the work done and progress made during the year:—

TABLE J (i).—LEPER INSTITUTIONS: ADMISSIONS DURING THE YEAR ENDED 30TH JUNE, 1928.

Institution.	First Admissions.								Readmissions.								Transfers from other institutions.								Total.		
	European.		Native.		Coloured or Mixed.		Asiatic.		European.		Native.		Coloured or Mixed.		Asiatic.		European.		Native.		Coloured or Mixed.		Asiatic.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Persons.
Robben Island...	2	3	1	1	6	—	—	—	—	—	3	—	4	4	—	—	1	—	2	—	1	—	—	—	20	8	28
Pretoria.........	7	4	124	75	5	—	1	—	2	—	7	10	2	—	—	—	1	—	—	—	—	—	—	—	149	89	238
Mkambati.......	—	—	39	29	—	—	—	—	—	—	17	8	—	—	—	—	—	—	—	—	—	—	—	—	56	37	93
Emjanyana......	—	—	76	53	—	—	—	—	—	—	3	3	—	—	—	—	—	—	14	2	—	—	—	—	93	58	151
Amatikulu.......	—	—	58	35	—	—	—	—	—	—	6	6	—	—	1	—	—	—	—	—	—	—	—	—	65	41	106
Bochem.........	—	—	13	5	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	14	6	20
TOTAL...	9	7	311	198	11	—	1	—	2	—	37	28	6	4	1	—	2	—	16	2	1	—	—	—	397	239	636

TABLE J (ii).—LEPER INSTITUTIONS: DEATHS OF PATIENTS DURING THE YEAR ENDED 30TH JUNE, 1928.

Institution.	European.		Native.		Coloured or Mixed.		Asiatic.		Total.		
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Persons.
Robben Island	—	3	5	—	6	8	—	—	11	11	22
Pretoria	4	4	43	18	1	—	—	—	48	22	70
Mkambati	—	—	20	10	—	—	—	—	20	10	30
Emjanyana	—	—	45	38	—	—	—	—	45	38	83
Amatikulu	—	—	23	9	—	—	—	1	23	10	33
Bochem	—	—	8	2	—	—	—	—	8	2	10
TOTAL	4	7	144	77	7	8	—	1	155	93	248

TABLE J (iii).—LEPER INSTITUTIONS: DISCHARGES, ESCAPES, TRANSFERS, ETC., DURING THE YEAR ENDED 30TH JUNE, 1928.

Institution.	Probationally Discharged as "Arrested and Non-Infective."									Discharged as Non-Leprous.									Escaped.									Transferred to other Institutions.								
	E.*		N.		C.		A.		Total.	E.		N		C.		A.		Total.	E.		N.		C.		A.		Total.	E.		N.		C.		A.		Total.
	M.	F.	M.	F.	M.	F.	M.	F.		M.	F.	M.	F.	M.	F.	M.	F.		M.	F.	M.	F.	M.	F.	M.	F.		M.	F.	M.	F.	M.	F.	M.	F.	
Robben Island	—	—	3	—	—	1	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
Pretoria	2	2	24	23	1	—	—	—	52	—	—	11	11	3	—	—	—	25	3	—	4	—	—	—	—	—	7	—	—	16	2	—	—	1	—	19
Mkambati	—	—	16	12	—	—	—	—	28	—	—	1	—	—	—	—	—	1	—	—	20	9	—	—	—	—	29	—	—	—	—	—	—	—	—	—
Emjanyana	—	—	48	49	—	—	—	—	97	—	—	2	1	—	—	—	—	3	—	—	2	—	—	—	—	—	2	—	—	2	—	—	—	—	—	2
Amatikulu	—	—	19	36	—	—	—	—	55	—	—	4	—	—	—	—	—	4	—	—	3	1	—	—	—	—	4	—	—	—	—	—	—	—	—	—
Bochem	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL	2	2	111	120	1	1	—	—	237	—	—	18	12	3	—	—	—	33	3	—	29	10	—	—	—	—	42	1	—	18	2	—	—	1	—	22

* E.—European. N.—Native. C.—Coloured or Mixed. A.—Asiatic.

TABLE J (iv).—LEPROSY: PATIENTS PROBATIONALLY DISCHARGED FROM INSTITUTIONS OR CLASSIFIED AS "ARRESTED AND NON-INFECTIVE," AND NUMBER OF SUCH PATIENTS SINCE READMITTED AS RECRUDESCENT.

	Probationally Discharged from institution (and actually left).					Classified as "Arrested and Non-Infective" but remaining at Institution at end of Year.					Probationally Discharged Patients who have been readmitted to Institutions as recrudescent.				
	European.	Coloured or Mixed.	Native.	Asiatic.	Total.	European.	Coloured or Mixed.	Native.	Asiatic.	Total.	European.	Coloured or Mixed.	Native.	Asiatic.	Total.
Year ended 30th June, 1923.........	11	23	468	1	503	3	—	40	—	43	—	—	8	—	8
Year ended 30th June, 1924.........	6	29	217	2	254	1	—	10	—	11	—	—	2	—	2
Year ended 30th June, 1925.........	6	5	94	—	105	—	—	10	—	10	—	—	2	—	2
Year ended 30th June, 1926.........	3	5	62	—	70	1	1	28	—	30	1	—	4	—	5
Year ended 30th June, 1927.........	2	3	166	—	171	—	2	59	—	61	4	2	12	—	18
Year ended 30th June, 1928.........	3	5	217	—	225	—	5	57	—	62	1	1	23	1	26
TOTAL.......	31	70	1,224	3	1,328	—	—	—	—	—	6	3	51	1	61

TABLE J (v).—LEPER INSTITUTIONS: PATIENTS THEREIN ON 30TH JUNE, 1928.

Institution.	European.		Native.		Coloured or Mixed.		Asiatic.		Total.		
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Persons.
Robben Island.....	15	9	13	7	74	36	—	—	102	52	154
Pretoria...........	52	24	454	339	8	5	3	—	517	368	885
Mkambati.........	—	—	134	102	—	—	—	—	134	102	236
Emjanyana........	—	—	366	222	—	—	—	—	366	222	588
Amatikulu.........	—	—	240	183	—	—	3	—	243	183	426
Bochem...........	—	—	66	50	—	—	—	—	66	50	116
TOTAL.....	67	33	1,273	903	82	41	6	—	1,428	977	2,405

TABLE J (vi).—LEPROSY: CASES REMAINING IN THEIR OWN HOMES ON 30TH JUNE, 1928.

	Certified and Awaiting Removal to Leper Institution.	Home Segregated.	Probationally Discharged from Leper Institutions.		Total.
			Still under surveillance.	Released from surveillance.	
Cape (Province proper).......	2	1	227	41	271
Transkei....................	25	3	309	38	375
Transvaal..................	2	2	303	6	313
Natal.......................	22	4	308	44	378
Orange Free State...........	—	—	61	11	72
UNION.........	51	10	1,208	140	1,409

8. *Malaria.*—During the year a severe outbreak took place in the Northern Transvaal, especially in the Districts of Zeerust, Rustenburg, Nylstroom, and Lydenburg, and to a lesser extent in Pietersburg and Zoutpansberg, during which a high percentage of the rural population—both white and coloured—suffered from attacks of malaria. This outbreak followed upon favourable rains during January and February in those districts. The outbreak lasted from the end of February to the end of May. It was stated by the District Surgeons of Zeerust and Rustenburg that from 80 to 90 per cent. of the total rural population of their districts were affected. On many farms everyone—Europeans and Natives alike—were ill at the same time. At some of the farm schools the attendance of pupils on some days dropped from 30 to 40 to 3 and 4—the others all being ill. Fortunately the type of parasite responsible was mainly the benign tertian and the proportion of deaths very small; most of these were natives and at the extremes of life (small children or very old people).

Splendid work was done by the Magistrates and Police as well as by the District Surgeons in these districts to help the sufferers and to supply them with quinine issued by this Department. A total of 1¼ million tablets of quinine was issued between October, 1927, to June, 1928, to all districts where malaria occurred for free distribution to indigent whites or natives and for sale at cost price to sufferers who could pay.

During the month of April an Assistant Health Officer of the Department investigated the conditions prevailing in the Districts of Rustenburg and Nylstroom, and visited a large number of farms by car. His report gave the following figures relating to the farms and native locations visited:—

Total number of Europeans	554
Total number of European cases of malaria	340
Total number of European deaths from malaria	6
Percentage of cases to this population	61.4 per cent.
Percentage of deaths to this population	1.1 per cent.
Total number of natives on farms and locations (approximately)	14,880
Total number of native cases of malaria (approximately)	11,080
Total number of native deaths from malaria	80
Percentage of cases to this population	74.4 per cent.
Percentage of deaths to this population	0.54 per cent.

A very high proportion therefore of the population (European, 62 per cent., Native 74.4 per cent.) suffered from malaria, but the death-rate was low. Similar conditions were said to occur all over these and neighbouring districts.

With regard to cause and mode of infection, local breeding-places of Anopheline mosquitoes (*A. costalis*) were easily found near to dwellings on every one of the farms and locations visited. These mosquitoes were found breeding in dams or "pans," rivers and reservoirs alike, within a mile at farthest and usually within 100 to 200 yards of the dwellings. With the exception of the rivers, it would be a comparatively simple matter to control the breeding of mosquitoes in such pools.

The other link in the chain of infection was the malaria "carriers," which consisted in the large number of persons resident in those districts who had previously suffered from malaria but had not *subsequently had efficient treatment* so as to kill the parasites in their blood.

At one farm school attended by 42 children the only persons who did not suffer from fever were the schoolmaster, his family, and his assistant, who had protected themselves *by taking quinine every day* all through the summer.

In considering the death-rate an important contributory factor was found to be the malnutrition from which so many of the patients, both European and Native suffered. It was noticeable that all the European deaths took place amongst the poor, in others the type of attack was invariably mild. The malnutrition was directly attributable to the prolonged drought during three successive years and consequent failure of local crops.

The preventive measures advocated by the inspecting health officer for next year include (*a*) educative propaganda amongst the rural population of the malarial districts as to the rôle played by the mosquito, the value and methods of anti-mosquito work, and the value of quinine; (*b*) that such educative propaganda be supplemented by practical demonstrations and advice given locally on farms by suitable men trained in anti-mosquito work; (*c*) that supplies of quinine be stocked at Police posts and Government farm schools as well as with Magistrates in the affected districts.

The Department's malaria map has been suitably amended for the area covered by the Matubatuba-Gollel railway line, so as to show the type of malaria occurring in different parts of this area.

The mosquito survey of the Union mentioned in last year's report was carried out and completed by the Medical Entomologist attached to the South African Institute for Medical Research, Dr. A. Ingram, assisted by Mr. B. de Meillon, B.Sc. The results are embodied in two able and important reports, the first of which was published by the South African Institute for Medical Research (Publication No. XXII) in October, 1927; the second is at present being printed. In addition to a description of the different species of mosquitoes collected and studied, and of the localities and conditions in which these breed and live, the first report contains useful suggestions for the reduction of breeding-places of anopheline larvae at the different places visited, as well as suggestions for preventive measures generally. From this report it appears that the two chief insect carriers of malaria in the Transvaal and Natal are *A. costalis* and *A. funestus*. The types of breeding pools favoured by these two species are described, and the information contained in these reports will be of great value for the organization of anti-mosquito campaigns in the future.

It is proposed to hold an informal conference of health officers of the Department before next malarial season for the purpose of discussing and outlining suitable anti-malarial and anti-mosquito measures to be carried out during the coming summer.

In conjunction with the South African Red Cross Society (Transvaal Branch) this Department has published a very practical and useful booklet on malaria, viz., " First Measures in Malaria Prevention for Farmers and Settlers," written by Dr. G. G. Hay of Louis Trichardt. This contains, as well, an important chapter on the principles of mosquito-proof housing, written by Dr. G. A. Park Ross, Union Assistant Health Officer.

A " Malaria Catechism," in question and answer form, has also been published for use in schools; also a wall card entitled " Danger of Mosquitoes." All these publications are in both official languages.

9. *Meningitis: Epidemic Cerebro-spinal.*—During the year there has been, as compared with previous years, a notable increase in the number of outbreaks and cases notified. This is shown by the following figures:—

Total notifications in 1925-26	389
Total notifications in 1926-27	296
Total notifications in 1927-28	978

The provincial distribution was as follows:—

Cape.		Orange Free State.		Transvaal.		Natal.		Native Territories.	
European	Non-European	European	Non-European	European	Non-European	European	Non-European	European	Non-European
107	463	7	13	76	293	11	7	1	—

In the Cape Province the great majority of cases occurred in and around Capetown. In the city area a severe outbreak occurred, with 42 European and 234 non-European cases. In addition, 74 cases (14 Europeans) were imported into Capetown from neighbouring districts and 57 others were notified in the Cape divisional area—a total of 407 for the Peninsula area. Neighbouring districts, especially Malmesbury (3 Europeans, 31 non-Europeans) were also affected.

In a report, the Medical Officer for Health for Capetown stated that in regard to the local cases the worst prevalence occurred in the parts of the city where the greatest poverty existed, and where, therefore, the greatest house-shortage and overcrowding are found.

Another illustration of the influence of overcrowding upon the spread of the disease occurred at Bot River Station in May, 1928, where eight cases with six deaths were reported amongst the Cape coloured population. The origin of infection of the first case—a small child—was not ascertained, but all the succeeding patients were known to have visited the dwelling where the first three cases lived while these were ill. The dwelling was a tiny single-roomed shanty occupied by three adults and three children, and, in addition, it was a popular rendezvous for coloured labourers in the neighbourhood.

The majority of cases notified in the Transvaal occurred amongst Natives on the Mines of the Rand.

In advice given by the Department to various local authorities during the year, the importance was emphasized of (*a*) early diagnosis by a medical man and immediate treatment by lumbar puncture and injection of serum; (*b*) immediate and strict isolation of the patient and continuous disinfection of his discharges and infected clothing or effects, and (*c*) dealing with overcrowding and stopping visitors.

10. *Pellagra.*—Occasional sporadic cases of this disease, mostly in Natives, have from time to time been reported from various parts of South Africa. The disease may quite possibly be more common than the available information indicates, as the symptoms are often vague so that mild or early cases may easily escape recognition. Some 150 cases of pellagra were diagnosed amongst Zulu prisoners captured during the Dinizulu-Bambata rebellion in Natal in 1906-1907. In 1912-1913 some 60 cases of pellagra occurred in native patients in the Pretoria Mental Institution, the majority being in males. Prominent features were typical skin rash, diarrhoea, and

neuritis. The attacks varied greatly in intensity, but many of the cases were severe and about 15 proved fatal. The prevalence was promptly arrested by the improvement of the diet of native patients, so as to provide more fats and vitamines, the chief additions being peanuts and more green vegetables. Several cases, considered to be pellagra, occurred in Native prisoners in the gaol at East London in 1913, and during the same year a case was reported in a Native in the Addington Hospital, Durban.

In April, 1927, a case of pellagra was reported by the Leprosy Board (consisting of the Union Assistant Health Officer and the Government Pathologist at Durban) in a Pondo Native who had been admitted to the Amatikulu Leper Institution a few days previously; the patient was discharged as a non-leper, diagnosed pellagra in a very advanced stage and sent to the Amatikulu Indian Hospital, where he died two months later.

Subsequently the Government Pathologist at Durban discovered three typical cases and one doubtful case of pellagra in the Addington Hospital, one of the typical cases having been admitted from the Congella Prison. Thereafter he visited the prison and there found four typical and six probable cases of the disease among the Native prisoners, all " short sentence " prisoners on the special diet authorized for such prisoners, the disease having developed in all cases after admission to the prison. Later on six cases were reported in the Central Gaol at Durban, also in short sentence prisoners.

At this stage the magistrates and district surgeons at all important centres throughout the Union were circularized by the Department on the subject of pellagra, but in the replies only one probable case was reported—this being in a Native prisoner at Krugersdorp who had had symptoms of the disease for several years before admission to the Gaol.

Steps were taken to isolate the cases in the Durban gaols, and 1 lb. of meat and a ration of beans twice weekly was added to the diet of short sentence Native prisoners.

Despite these measures, cases continued to occur in the Durban gaols; up to 6.3.28, 30 cases were reported, of which 27 were in short sentence and 3 in long sentence prisoners. From that date up to 14.9.28 a further 22 cases have been discovered in the Congella Prison and Central Gaol, Durban, of whom 2 were on short sentence Asiatic and Coloured diet; 7 on long sentence Asiatic and Coloured diet; 2 on short sentence Native diet; and 11 on long sentence Native diet.

It would appear, therefore, that the disease cannot be entirely attributable to insufficient or unsuitable diet, but that there must be some other determining factors operating in these two gaols. What these factors are has not yet been determined; the matter is being further investigated in consultation with the South African Institute for Medical Research.

11. *Plague*—(1) *Plague in Rodents.*—An extension of the area of rodent plague infection in the Western Transvaal and Northern Cape, involving an area about 70 miles wide and 350 miles long, stretching from near Mafeking to about 30 miles west of Douglas Township, occurred during the year. No human cases were reported in this area.

During the past two or three years there has been a notable increase of veld rodents (mainly *Lobengula* and *Namaqua gerbilles*) along the whole length of the Witwatersrand (*vide* plague map as at August, 1927, published with last Annual Report). In June, 1927, a plague-infected " white-tailed " rat (*Mystromys albicaudatus*) and a few other infected veld rodents were found in the Roodepoort area—probably an extension from an old infected area to the south. Energetic and thorough anti-rodent measures were promptly carried out by the Johannesburg and other Reef municipalities with successful results—the infection being apparently eradicated in the locality without the occurrence of any cases in man.

In January, 1928, it was reported from several sources that mortality amongst veld rodents had been noticed in various districts of Northern Natal. Investigation by this Department's rodent officers confirmed these reports, but despite careful and persistent search no fresh carcasses suitable for bacteriological examination could be found, so that the cause of this mortality has not yet been determined.

In June, 1928, the carcass of a " fat mouse " (*Steatomys krebsi*) was picked up by one of the Department's rodent inspectors in the Blood River area. On examination at the Durban Laboratory the carcass was found to contain a suspicious organism capable of killing guinea-pigs, but the South African Institute for Medical Research, Johannesburg, after further investigation came to the conclusion that the organism was not plague.

In June, 1928, rumours of an invasion of parts of Northern Zululand by vast numbers of rodents were published in various newspapers, causing considerable alarm in Zululand and Natal. Investigation by a rodent officer of this Department showed that multimammate and fat mice had recently increased enormously in the stretch of country between the Mkuzi and Hluhluwe Rivers and in the Pongola Valley. This increase had doubtless been fostered by early rains, giving the mice plentiful food and cover, and also by the absence or scarcity of their natural enemies—such as snakes, wild cats, owls and hawks—which have been largely exterminated by the European planters. Subsequently, when food supplies in the bush and uncultivated lands failed, the rodents invaded adjoining cotton and maize fields, and did much damage. No evidence of mortality of a suspicious nature was found amongst them, and concerted action by planters, mainly by means of poisoned wheat, rapidly reduced their numbers. A story of a similar invasion about 20 years ago, also due to natural causes, was given by old residents in Zululand.

In March, 1928, in the course of a re-survey of the southern and south-western coastal districts of the Cape Province, the Chief Rodent Officer of the Department discovered evidence that plague infection amongst veld rodents had spread from the Coega Valley, Uitenhage District, where infection had been dormant for several years, to the municipal boundary of Port Elizabeth. In addition to gerbilles, striped and fat mice, numbers of carcasses of "white-tailed" rats were also found on the veld.

On the advice of this Department, immediate and energetic action was taken by the Port Elizabeth Municipality and other local authorities concerned, both in regard to systematic destruction of rodents in the veld and also in the towns, and to rodent-proofing of stores and other premises. Fortunately no human cases occurred.

In the north-western Cape districts (Namaqualand and Van Rhynsdorp) infection has also spread further during the year over an area approximately 80 miles wide by 300 miles long, extending from the Orange River to a point five miles north of Van Rhynsdorp Township and involving also part of the Ceres basin. Carriage of infection is to a large extent ascribed to hares, which are very numerous in these parts. In consequence of the grave danger to the thickly populated Cape Peninsula (the Ceres valley is only 70 miles distant from Capetown), and to the other grain districts to the east and north of Capetown, it was felt by this Department that immediate and energetic action and co-operation were required.

Accordingly, all local authorities concerned were warned as to the gravity and imminence of the danger, and advised as to the best and most economical preventive measures. Anti-rodent gangs were sent to clear of rodents all the principal mountain passes between Ceres, where infection existed, and Worcester, Tulbagh, and Piquetberg, which are as yet uninfected. Farmers in the Tulbagh valley assisted by providing labour while the gangs were working on their farms. The Municipal and Divisional Councils of Worcester jointly undertook the clearance of infested veld in their areas; their work is now (at the end of June) nearly completed.

The Piquetberg and Malmesbury Districts continue to be very badly infested with rodents, and if plague were introduced among them it is likely, under existing conditions, to spread very rapidly

In April, 1928, a conference of all local authorities in the Cape Peninsula and neighbouring parts of the mainland was convened by the City Council of Capetown, in which the Secretary for Public Health also took part. After full and frank discussion of the situation and the measures required to check the spread of plague in rodents, the following resolutions were adopted:—

(1) "That this conference notes with satisfaction that the Government is maintaining rodent-free areas at the points where plague infection is most likely to pass the natural barriers formed by the mountain ranges from the Drakenstein to the Cedarbergen and along the Olifants River, and suggests to the Government the desirability of hares being destroyed on these natural barriers."

(2) "That with a view to preventing the spread of plague infection from the country beyond the afore-mentioned natural barriers, the following action be taken in regard to the maintenance of rodent-free belts:—

(*a*) That the Capetown City Council be requested to continue to maintain the rodent-free belt already established and extending from Table Bay at Salt River mouth to False Bay between Sandvlei and Zeekoevlei.

(*b*) That the Government and the Cape Divisional Council be requested to continue to maintain the rodent-free belt already established, stretching from Table Bay to the Divisional Council boundary beyond Bellville and thence southward to False Bay, and that this belt be completed to a width of not less than three miles at all points."

(3) "That all local authorities (urban and rural) within the threatened area be strongly urged to take all precautionary measures, including the following:—

(*a*) The destruction by poisoning and otherwise of veld rodents throughout their areas;

(*b*) rat-proofing of new buildings, and of existing buildings which are infested or liable to become so (especially grain, forage, and food stores), and the destruction of rats;

(*c*) that the public throughout the threatened areas be encouraged to kill hares by shooting or otherwise, and that placards to this effect be posted throughout the areas."

(4) "That with a view to preventing the introduction of plague infection with forage and other produce, it is desirable to institute a system of inspection of produce from plague-infected areas entering the threatened areas, both at the place of production and dispatch and the place of delivery."

(5) "That the Government be asked to draft and circulate a statement of the steps that should be taken by local authorities in the event of cases or suspected cases of plague occurring."

(6) "That local authorities take all possible steps within their power for the removal of accumulations of refuse and filth, and use every endeavour to cleanse the poorer and more congested areas of conditions favourable to the breeding of rats."

The Government and the local bodies concerned are carrying out the terms of these resolutions; in response to Resolution 5, Pamphlet No. 380 (Health) has been published and distributed to all local authorities in the south-west Cape.

(2) *Human plague* occurred only in single cases or small groups of cases during the year, a total of 39 cases with 31 deaths being recorded. Twelve magisterial districts, of which all but two (viz., Richmond and Hanover, Cape Province) were in the Orange Free State, were involved. All the cases occurred in rural areas, and in each single case and every original case in each group there was reason to attribute infection to veld rodents. Sixty-four per cent. of the cases were of the bubonic type; twenty-three per cent. were pneumonic, and thirteen per cent. septicaemic. All but one of the patients were Natives. The following table shows their distribution:—

TABLE K.—PLAGUE CASES AND DEATHS IN THE UNION DURING THE YEAR ENDED 30TH JUNE, 1928.

Province.	Number of Outbreaks.	European.		Coloured or Native.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape	3	1	1	4	3	5	4
Natal	—	—	—	—	—	—	—
Transvaal	—	—	—	—	—	—	—
Orange Free State	11	—	—	34	27	34	27
UNION	14	1	1	38	30	39	31

As bearing on the question of mode of infection, an interesting outbreak occurred in the Edenburg District, Orange Free State. Two European lads on a farm "De Put" shot or trapped two apparently healthy suricats, and found another lying ill and dying. They killed these, carried them some distance, threw them into a hole, and covered them with sand. Five Native children saw this from a nearby hut, went up shortly after and unearthed the suricats, skinned and roasted them, and three of these children partook of the meat. Twenty-four hours later the two smallest of these three children took ill and died about thirty-six hours after with symptoms suggestive of septicaemic plague. The eldest of the three took ill forty-eight hours after eating of the meat, developed a bubo under the left armpit, and died twelve days later. On inquiry, the European and Native children all agreed that the sick suricat was " black with fleas " when it was picked up and skinned. It was not ascertained which of the Native children actually carried and skinned that animal: if the eldest, then the appearance of a bubo is easily accounted for.

(3) *Plague Research.*—Very little further research work has been done on the lines suggested in last year's annual report, viz., a flea survey of the Union and the utility of the " Tiger River Bacillus " in destroying veld rodents. Owing to the departure for England of Dr. A. Ingram, Research Entomologist, last March, on the expiry of his term of service with the South African Institute for Medical Research, and to the work required to complete his Anopheline survey before his departure, not many additional fleas could be collected, identified and classifed. Such as were examined did not differ in species from those previously classified. In one or two batches of fleas taken by one of our rodent inspectors from veld rodents in the Klaver area, Van Rhynsdorp district, there was an unusual and disquieting proportion of fleas of a species (*X. cheopis*) mainly found on domestic rodents. In this area there are black rats about some of the farmhouses and outbuildings, and it seems clear that they associate closely with veld rodents and that interchange of fleas is not infrequent. Tests carried out with the " Tiger River Bacillus " were disappointing in that, while a large proportion of veld rodents fed on bread or other bait infected with this bacillus died, there was practically no spread of infection to " contact " rodents.

The Research Bacteriologist of the Institute, Dr. J. H. Harvey Pirie, carried out experiments to find an effective plague " Bacteriophage " that could be used as a therapeutic agent. While the earlier experiments were quite encouraging, later work was uniformly negative.

(4) *Anti-rodent Measures.*—Further representations have been made by the Department to local authorities throughout the Union urging them to make use of their powers under the rodent-proofing regulations in the direction of requiring owners and occupiers of stores or shops containing foodstuffs to render such buildings rodent-proof and to " build out the rat." This is without doubt by far the most effective and permanent line of defence as far as urban areas are concerned, and is considered of paramount importance in the campaign against plague. Most local authorities are now enforcing the regulations in respect of *new* stores and shops, but very many of the smaller, and several larger, urban bodies have been very dilatory or apathetic in regard to the rat-proofing of *existing* stores and similar buildings.

In rural areas, with the exception of the Cape Western District, unfortunately but little systematic work is being done by owners or occupiers of land or by rural local authorities to destroy or keep down the numbers of veld rodents in spite of much educative and publicity work carried out by the Department.

The use of strychnine-poisoned wheat has again been found during the year to be one of the easiest, cheapest and most effective methods of eradicating veld rodents. Another very successful method under certain conditions is the use of " Cyanogas " pumps.

12. *Rabies.*—During the year no actual case of rabies was reported, although there were several " scares." The attention of magistrates, local authorities and medical men is drawn again to the necessity for immediately notifying this Department whenever a case of rabies, real or suspected, comes to their notice.

It has not been found possible in any recent case of suspected rabies either to confirm or definitely exclude the diagnosis by pathological examination owing to delay and failure to follow the proper procedure on the part of those on the spot. Such procedure should include:—(1) Immediate report, with full details, to the magistrate by the medical man who sees the case; (2) immediate notification of the known facts by the magistrate to the Secretary for Public Health and to the local Government Veterinary Officer (if any); (3) recognition that not only dogs but also meerkats and wild cats may become mad and bite human beings or other animals; (4) an attempt to secure *alive* the dog or cat which is suspected of being mad, or, if already dead, to secure its head immediately after death; (5) immediate post-mortem removal of the brain where a person is suspected to have died of rabies; (6) immediate packing in ice of the head or brain of the animal and of the brains of the human victim, and forwarding same to the South African Institute for Medical Research, Johannesburg, or the Government Pathological Laboratory, Capetown.

13. *Scarlet Fever.*—Notifications of this disease totalled 3,183, a considerable increase over last year's total of 968. The greatest prevalence occurred during the colder months of the year, and by far the greatest number of cases occurred in the colder parts of the Union—the Highveld and south-western Cape. The contrast between Natal with 76 cases and the Transvaal with 1,735 cases, giving an incidence rate of approximately 0.45 per thousand and 2.73 per thousand of the European population respectively, is marked.

In South Africa, scarlet fever is almost exclusively confined to Europeans; Natives are practically immune and the incidence amongst Eurafricans is almost negligible. As a rule the disease is milder in form, is less frequently attended with serious complications, and shows a lower mortality than is the case in Northern Europe.

The difficulties of control and prevention of dissemination of the disease in rural areas are identical with those encountered in dealing with diphtheria, and unfortunately the means for active immunization of susceptibles have not reached the same standard of efficiency as has been attained for that disease. The Dick test, however, has now been established definitely as a means of detecting susceptibles, upon whom it is possible to confer by inoculation with concentrated scarlet fever anti-toxin a passive immunity lasting for several weeks.

14. *Senecio Disease.*—This fatal disease is due to the eating of bread made from wheat intermixed with senecio (sprinkaansbos) seeds, and which has been ground in a mill not provided with proper winnowing apparatus. This plant is often found in the south-western districts of the Cape Province growing freely in wheat fields, and its seeds contain a poison which is very fatal to animals as well as human beings. Mills equipped with modern winnowing apparatus are able to get rid of all the senecio seeds in the wheat sent for grinding, and such flour is therefore safe.

During the past year four cases (two of them fatal) in human beings were reported—three in the District of Riversdale and one in the George District.

A small quantity of the flour which was suspected of having caused the illness in the last-mentioned case was obtained and experimentally tested at the Veterinary Research Laboratory, Onderstepoort, Pretoria. This sample was found to kill experimental animals within a few hours, but the sample was unfortunately insufficient for exact proof that the death was due to the presence of senecio seed in the flour, rather than to "drabok" or other impurities also found to be present. The symptoms exhibited by the animals and the post-mortem appearances were, however, similar to those found in cases of senecio disease. It is proposed to carry out further experiments during the coming summer.

Strong representations have been made to the owners of mills of old and obsolete type in the affected districts to equip them with modern and effective winnowing appliances, but without success in a number of instances. Effective powers in this connection are provided in the Food, Drugs, and Disinfectants Bill now before Parliament.

15. *Smallpox and Vaccination.*—No serious outbreak of smallpox occurred during the year, but the position at most of the larger centres is very unsafe owing to the accumulation of a large percentage of susceptibles in the population. As pointed out in previous reports, this has resulted from the suspension of compulsory enforcement of the vaccination provisions of the Public Health Act, 1919. As soon as the Public Health Amendment Act, passed last Session (Act No. 15 of 1928), comes into operation, including the clauses laying down the procedure enabling objectors to obtain exemption from vaccination, active steps will be taken to enforce the provisions of the law regarding vaccination, but in the nature of things it will take some time to make up for the laxity of the past five or six years.

The subjoined tables show the occurrences of smallpox and the public vaccinations performed during the year:—

TABLE L (i).—SMALLPOX: CASES AND DEATHS REPORTED DURING THE YEAR ENDED 30TH JUNE, 1928.

Province.	Number of Districts Affected.	European.		Non-European.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape	8	5	—	18	—	23	—
Natal	3	—	—	7	—	7	—
Orange Free State	6	—	—	14	—	14	—
Transvaal	4	1	—	3	—	4	—
UNION	21	6	—	42	—	48	—

TABLE L (ii).—STATE AS TO VACCINATION OF CASES OF SMALLPOX REPORTED DURING THE YEAR ENDED 30TH JUNE, 1928.

Particulars.	European.		Non-European.		Total.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
*Previously vaccinated	1	—	10	—	11	—
Unvaccinated	5	—	32	—	37	—
TOTAL	6	—	42	—	48	—

* In most cases many years previously.

TABLE M (i).—VACCINATION OF INFANTS AND CHILDREN IN THE CLASSES OF THE POPULATION WHICH REGISTER BIRTHS: YEAR ENDED 30TH JUNE, 1928.

(These figures do not include re-vaccination of 12-year-old children,)

Particulars.	Cape.		Transvaal.		Natal.			Orange Free State.	Union.
	Cape District.	Remainder of Province.	Rand Area.	Remainder of Province.	Durban.	Pieter-maritzburg.	Remainder of Province.		
Births entered in vaccination register	10,695	57,197	8,495	10,880	1,908	630	1,725	5,214	96,744
Successfully vaccinated	3,716	1,830	446	747	312	115	376	204	7,746
Insusceptible to vaccination	21	2	4	4	7	2	9	3	52
Vaccination postponed owing to illness	45	25	9	9	45	2	39	18	193
Previously had smallpox	4	—	—	—	—	—	—	—	4
Deaths of infants under two years registered	2,133	5,521	923	800	157	61	165	282	10,042
Ratio percentage of vaccinations registered to births registered during the year (after allowing for deaths of infants under two years)	43·6	3·5	5·9	7·5	18·2	20·6	24·7	4·2	9·0

TABLE M (ii).—RE-VACCINATION OF TWELVE-YEAR-OLD EUROPEAN CHILDREN IN NATAL: YEAR ENDED 30TH JUNE, 1928.

Particulars.	Durban.	Pieter-maritzburg.	Remainder of Province.	Total.
Registration of twelve-year-old European children	1,056	579	936	2,571
Successfully vaccinated	439	215	404	1,058
Insusceptible to vaccination	39	49	64	152
Vaccination postponed owing to illness	7	5	10	22
Previously had smallpox	—	—	—	—
Ratio percentage of vaccinations to twelve-year-old registrations	45·3	45·6	50·0	47·1

Table M (iii).—Public Vaccinations during the Year ended 30th June, 1928.

Province.	Number of Centres at which Public Vaccinations were held.		Number of Visits of Public Vaccinators to centres.		Numbers Vaccinated.				Total.
					Europeans.		Non-Europeans.		
	Urban.	Rural.	Urban.	Rural.	Primary.	Re-Vaccination.	Primary.	Re-Vaccination.	
Cape	164	1,435	414	1,437	9,234	907	55,543	46,866	112,550
Transvaal	69	444	221	444	9,117	1,638	51,927	66,350	129,032
Natal	39	259	104	259	686	317	28,536	2,930	32,469
Orange Free State	42	215	72	216	2,846	496	7,033	1,580	11,955
UNION	314	2,353	811	2,356	21,883	3,358	143,039	117,726	286,006

16. *Tuberculosis*: (1) *General.*—Notifications during the year showed some reduction as compared with last year—5,491 as compared with 5,897 for the year ended 30th June, 1927, but so many cases, especially in non-Europeans, are not seen by a medical man or notified that no reliable deduction as to prevalence can be drawn from these figures.

The comprehensive scheme of investigation of the disease detailed in last annual report and financed in equal proportion by the Government, the Chamber of Mines, and the Deferred Pay Fund Board and directed by a representative Tuberculosis Research Committee through the South African Institute for Medical Research, has been actively continued during the year and much useful information has been elicited. Dr. Peter Allan, who has been temporarily seconded for the purpose of the research from the post of Medical Superintendent, Nelspoort Sanatorium, was continuously employed on field investigations—mainly in the Transkei and Ciskei—in connection with the scheme during the year. Professor Lyle Cummins, leader of the research, paid a short visit to the Union during the year, and saw as much of the problem and local conditions as was possible in the time available.

(2) *Nelspoort Sanatorium.*—The following table summarizes the work of the institution during the year:—

Table N.—Admissions, Discharges, Deaths, etc., at Nelspoort Sanatorium.

	Total.	European.			Non-European.		
		Male.	Female.	Total.	Male.	Female.	Total.
In sanatorium on 1st July, 1927	76	26	27	53	16	7	23
Admitted during year	244	93	87	180	38	26	64
Total	320	119	114	233	54	33	87
Died during year	7	3	2	5	2	—	2
Discharged during year	232	83	86	169	38	25	63
Total	239	86	88	174	40	25	65
In sanatorium on 30th June, 1928	81	33	26	59	14	8	22

The patients admitted during the year were in the following stages of the disease:—

Race.	Stage I.	Stage II.	Stage III.
White	33.9 per cent.	32.8 per cent.	33.3 per cent.
Coloured	42.2 per cent.	18.8 per cent.	39 per cent.

Of the 244 admissions during the year, 187 were free, half their cost being paid by the local authority and half from the Department's vote, 14 were part-paying or contributing, and 43 were full-paying patients.

The average stay of patients in the Institution was: Europeans, 98 days; coloured, 115 days.

Of the 232 patients discharged, 61 were noted as "much improved," 127 as "improved," 42 as "stationary," and 2 as "worse."

The lines of treatment have been the same as those of previous years, namely, rest, regulated exercise and work, careful but ample dieting, and such special treatment as vaccine, cod liver oil, calcium, malt extract, and yeast. Artificial Pneumothorax treatment was applied to 19 patients, involving 189 operations, all with good results. Towards the end of the year treatment with sanocrysin (gold chloride) was instituted in a number of cases with encouraging results. Sun treatment has been continued as in previous years, and also in an intensive form in selected cases since the opening of the Solarium pavilion at the end of April last.

A noteworthy feature of the year's working has been the increase of paying patients.

The concrete weir scheme in the Salt River, with irrigation dams and furrows, is approaching completion, and seems likely to prove very satisfactory.

17. *Typhus Fever.*—The following table shows the cases and deaths reported during the year:—

TABLE O.—TYPHUS FEVER: CASES AND DEATHS REPORTED DURING THE YEAR ENDED 30TH JUNE, 1928.

Province.	Number of Districts Affected.	European.		Non-European.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape	45	18	—	1,136	188	1,154	188
Natal	12	30	—	61	8	91	8
Orange Free State	7	3	—	65	8	68	8
Transvaal	3	1	—	17	4	18	4
UNION	67	52	—	1,279	208	1,331	208

The table shows some increase in the number of cases notified compared with last year. The increase has taken place principally in the Transkei. The chief prevalences occurred in the Districts of Glen Grey, Qumbu, and Ngqeleni, where some difficulty was experienced in stamping out the outbreaks owing partly to heavy rains which impeded transport and, in some cases, to the indifference and negligent attitude of a few kraal headmen. The European cases were all sporadic, and the source of infection by lice was usually difficult to trace. Although the disease is on the whole far less prevalent than in former years, there is need for constant watchfulness on the part of local authorities and employers of Native labour all over the Union. The earlier a case of typhus is definitely diagnosed the easier it will be to prevent its further spread. In this connection attention is again drawn to the value of the Weil Felix blood test in the diagnosis of this disease.

18. *Venereal Diseases*: (1) *General.*—The following table summarizes the work done in connection with venereal diseases by district surgeons, local authorities, and institutions during the year:—

TABLE P.—VENEREAL DISEASES: CASES TREATED AND ATTENDANCES. YEAR ENDED 30TH JUNE, 1928.

Locality.	In Hospital.						Outdoor Attendances.						Grand Total.
	Syphilis.		Gonorrhoea and other Venereal Diseases.		Total.		Syphilis.		Gonorrhoea and other Venereal Diseases.		Total.		
	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.	
(1) *By District Surgeons*													
Cape	18	963	25	297	43	1,260	248	7,670	163	1,035	411*	8,705*	10,419
Natal	3	109	1	47	4	156	32	1,767	102	216	134*	1,983*	2,277
Transvaal	20	441	11	37	31	478	107	3,411	62	157	169*	3,568*	4,246
Orange Free State	—	1	—	—	—	1	188	2,460	138	370	326*	2,830*	3,157
(2) *At Institutions*													
Barberton	—	141	—	5	—	146	—	—	—	—	—	—	146
Bloemfontein	4	107	10	6	14	113	27	267	29	6	56	273	456
Bochem	—	1,160	—	14	—	1,174	—	7,838	—	647	—	8,485	9,659
Capetown	—	210	—	198	—	408	5,217	6,147	3,513	1,890	8,730	8,037	17,175
Colesberg	—	13	—	—	—	13	—	—	—	—	—	—	13
Cradock	—	112	—	—	—	112	—	—	—	—	—	—	112
Durban	51	550	41	102	92	652	1,246	630	2,684	433	3,930	1,063	5,737
East London	—	—	—	—	—	—	330	727	259	224	589	951	1,540
Elim	1	676	1	21	2	697	—	182	—	1	—	183	882
Johannesburg	—	—	—	—	—	—	4,819	—	4,246	—	9,065	—	9,065
Kimberley	9	170	4	22	13	192	17	1,020	—	15	17	1,035	1,257
Kingwilliamstown	1	112	1	4	2	116	—	6	22	3	22	9	149
Krugersdorp	—	—	—	—	—	—	28	14	16	9	44	23	67
Kuruman and Olifants Hoek	—	51	—	—	—	51	7	576	—	—	7	576	634
Mpahlele	—	53	—	—	—	53	—	628	—	—	—	628	681
Oudtshoorn	—	—	—	—	—	—	32	229	—	—	32	229	261
Pietermaritzburg	—	56	—	—	—	56	79	755	58	129	137	884	1,077
Port Elizabeth	2	14	2	—	4	14	431	1,172	2,214	2,489	2,545	3,661	6,324
Port St. Johns	—	—	—	—	—	—	—	60	—	16	—	76	76
Pretoria	—	—	—	—	—	—	606	2,955	176	102	782	3,057	3,839
Rietfontein	106	1,949	109	666	215	2,615	2,263	2,653	—	—	2,263	2,653	7,746
Sekukuniland (Jane Furse Memorial)	—	114	—	2	—	116	—	3,588	—	109	—	3,697	3,813
Stellenbosch	—	14	—	—	—	14	52	598	—	2	52	600	666
Victoria West	—	—	—	—	—	—	—	3	—	1	—	4	4
Vryburg	—	102	—	—	—	102	—	885	—	—	—	885	987
TOTAL	215	7,118	205	1,421	420	8,539	15,729	46,241	13,682	7,854	29,411	54,095	92,465

* Individual patients, each of whom attends on an average of three times.

Free issues of anti-syphilitic drugs to the value of £7,199 were made by the Department during the year, being an increase of £477 over the previous year's issues. As expenditure under this item has increased beyond the amount specifically voted for the purpose, it has been necessary to restrict to some extent the large quantities of such drugs requisitioned by some local authorities during the year and to emphasize the need for using as far as possible the less expensive kinds of anti-syphilitic remedies.

Urban local authorities are to an increasing extent realizing their responsibilities regarding venereal diseases in their areas by establishing venereal clinics or treatment centres. At present approximately 26 such clinics are being maintained by urban local authorities, which are also recognized by the Department for refund purposes. Such refunds are on a liberal scale, and it is hoped that many more municipalities will find it possible to establish such clinics in the near future.

The percentage of the population showing a positive reaction to syphilis by the Wasserman test (which is usually taken to mean either active, latent or past syphilis or an inherited syphilitic taint) varies widely among the different races in the Union and in different localities. It is to be noted that, as a rule, only a small percentage of such " positives " show clinical symptoms of active syphilis; also that a positive Wasserman test does not necessarily mean that the individual is infective. Amongst Europeans in the inland towns the percentage of such persons is estimated at not more than 5 per cent.; in ports the ratio is somewhat higher, and in rural areas lower. In non-Europeans the proportion varies more widely. Amongst the coloured population of the Cape Peninsula and vicinity it is very high. In the report of the South African Institute for Medical Research for the year ended 31st December, 1927, a table is given showing the results of the blood examination of 1,200 apparently healthy Native labourers belonging to eight different tribes before commencing work on the gold mines—made at the request of this Department. Positive reactions to the Wasserman test varied from 2 per cent. in Xosas to 29.5 in Basutos; East Coast Natives showing 7 per cent., Pondos 8.5 per cent., and Bechuanas 22 per cent. of positives.

The comparatively small proportion of Natives with a positive Wasserman reaction who show clinical signs of syphilis is a matter for further investigation. The phenomenon is by no means confined to South Africa, but in other countries, such as Kenya, the prevalence of yaws may be at least a partial explanation.

Special difficulties in dealing with venereal diseases amongst Natives and mixed coloureds are their carelessness about their own health, their laxity in attending for treatment or taking medicines, and their usually complete lack of any feelings of shame in regard to venereal diseases. Educative and publicity work amongst them has, as a rule, very little effect. Under the pass system obtaining in some of the Provinces, a measure of control can be exercised in regard to males, but action on these lines in regard to females is extremely difficult. Native females are frequently commercialized purveyors of the disease, and in the large labour centres of the Northern and Eastern Transvaal frequently operate in gangs. It was hoped that with the coming into operation of the Natives (Urban Areas) Act, No. 21 of 1923, it would be possible through the agency of matrons of Native hostels and otherwise, to exercise a measure of control and supervision over Native females and to exclude from urban areas undesirable and redundant Natives of both sexes, but up to the present this hope has not been realized.

(2) *Rietfontein Hospital.*—The arrangements by which most of the Reef municipalities and mines and the Municipality of Pretoria pay an agreed rate (Europeans 8s. 6d., Natives 3s., per day each, plus rail transport) for cases sent by them to Rietfontein Hospital is being continued, and has been largely taken advantage of. During the year the Department sustained a serious loss by the death in July, 1927, of Dr. Max Mehliss, who had for 28 years held the post of Medical Superintendent of the Rietfontein Hospital, with conspicuous ability and success. Dr. Mehliss was a very conscientious and hard-working officer, an able clinician, and a sympathetic administrator who won the confidence of Natives to an unusual degree. In his place Dr. J. Daneel, who previously held the post of Assistant Medical Officer to the Pretoria Leper Institution, has been appointed.

During the year the programme of demolishing the old wood and iron hospital buildings and replacing them with brick buildings of modern design, initiated four years ago, was completed; the hospital has been practically rebuilt, and now affords comfortable and commodious accommodation for both patients and staff.

VI.—GENERAL.

1. *Sanitation, Refuse Disposal, etc.*—Owing to the absence of water-borne sewerage in most of the smaller urban centres of the Union, the disposal of night-soil occupies a prominent position in the sanitary administration of the vast majority of local authorities. The bucket system is mostly in use, and unless great care is taken grave dangers to health are apt to arise. Closely associated with these difficulties is the problem of slop-water disposal. In some places this can be met by the construction of french drains, but very often the soil is not of a nature to permit of such a practice, and then the only alternative, in congested areas, is daily collection by municipal service. The proper removal of domestic refuse and the strict enforcement of cleanliness of house yards and other premises are matters which do not always receive that degree of attention from local authorities which their importance requires.

The most common defects found in these services are improperly constructed sanitary conveniences, unsuitable and unstandardized pails, unsuitable and often unlidded receptacles for the storage of domestic refuse, slop-water, and manure; whilst the ultimate disposal of all these waste products frequently leaves much to be desired.

Insanitary conditions resulting from defective or unsuitable plant or method and inefficient local administration are undoubtedly responsible for the extreme prevalence of flies in most towns throughout the Union and the consequent dissemination of typhoid fever and other preventable intestinal diseases. Another very important factor is the very general practice of keeping animals—horses, cows, mules, etc.—on domestic premises in most small South African towns. These are, as a rule, kept in kraals or badly constructed stables, without drainage, and very little precaution is taken to ensure the proper and safe disposal of their excreta.

The proper disposal or treatment of manure, night-soil, refuse, and slops, so as to prevent fly-breeding, the construction of standard types of sanitary conveniences with fly-proof seats, the provision of suitable impervious receptacles for domestic refuse, slop-water, and manure pending removal, and the restriction and more stringent control of the keeping of animals, are imperative if these diseases are to be controlled and their incidence brought within desirable limits.

The system of general periodical inspections of local authority areas by officers of this Department is doing much to bring about greatly needed reform, whilst the wide circulation of the Department's pamphlet No. 335 (Health), entitled "House-flies: Their Life-history, Destruction, and Prevention, and their influence on Sanitation and Health," has placed in the hands of local authorities and others upon whom the responsibilities of safeguarding the health of the community falls, a useful handbook setting out in non-technical and easily understood language approved methods of dealing with these matters.

2. *Housing.*—Full details of the working of the Housing Act, No. 35 of 1920, from the date of its commencement are given in the report of the Central Housing Board for the calendar year 1927, which was laid in typescript on the Tables of Parliament during last Session. A summary of the position as at the 30th June, 1928, is given in the following table:—

Table Q.—Housing Act, No. 35 of 1920: Working from Promulgation (16th August, 1920) to 30th June, 1928.

Province.	Loan Applications Approved.			Loan Issues.	Number of Houses.				Total for European occupation.	Total for Non-European occupation.
	European.	Non-European.	Total.		Completed.	Under Construction.	Approved, but not yet commenced.	Total.		
	£	£	£	£						
Cape	887,073	350,723	1,237,796	1,051,857	3,083	133	577	3,793	1,226 (*a*)	2,567 (*b*)
Natal	458,700	45,100	503,800	483,072	493	3	24	520	421	99 (*c*)
Orange Free State	388,117	22,615	410,732	388,469	768	376	512	1,656	416	1,240 (*d*)
Transvaal	656,760	168,354	825,114	794,174	2,057	18	13	2,088	778	1,310 (*e*)
UNION	2,390,650	586,792	2,977,442	2,717,572 (*f*)	6,401	530	1,126	8,057	2,841	5,216

(*a*) Includes a hostel to accommodate 86 persons.
(*b*) Includes 755 single rooms in blocks.
(*c*) Includes 3 barracks and 16 single rooms in blocks.
(*d*) Includes 24 single rooms in blocks, the balance of 1,216 representing the approximate number of dwellings to be built out o fa total loan of £21,465 made to three local authorities for use exclusively in purchasing materials to be advanced to coloured persons and natives building their own homes.
(*e*) Includes 82 single rooms in blocks, 3 compounds and 2 hostels.
(*f*) Includes £257,797 re-issued out of repaid capital.

Reckoning the £1,000,000 of new money which the Government has agreed to make available in four yearly instalments commencing from the current financial year (1928-29) for assisting the housing of the poorer classes, the Government's total commitment to date under the Act stands at £3,581,000. In addition there are the half-yearly repayments of capital becoming available for re-issue, which, with a sum of £75,000, which it is estimated will be repaid to Provincial Administrations during the current financial year, amount to £341,700 since the commencement of the Act. The sum which has thus been available up to the end of the current financial year for making allotments to local authorities totals in round figures £3,922,000, and is fully absorbed by the allocations which have been sanctioned to date.

Funds are only available for the year in which the money is voted, and owing to the slow rate at which work has progressed on a number of approved dwellings and schemes as also the delay on the part of certain local authorities in taking up in full the sums allocated for their use, fairly large amounts have hitherto had to be surrendered annually. This has caused considerable criticism, especially as the amount of the provision for the year has usually proved insufficient to meet all deserving applications coming forward from local authorities for an allocation of funds. In some instances the delay has been unavoidable on account of difficulties beyond the control of the local authorities which have arisen in regard to the sites selected for carrying out contemplated schemes, but in other cases it has been necessary to fix a time limit within which a local authority is required to formulate its proposals, failing which cancellation of the allotment has been recommended. Section 8 of the Housing Act contemplates that reasonable progress be made with an approved dwelling or scheme, and while the greatest consideration is shown in extending the time for taking up an allotment of funds, it cannot be expected that the money be earmarked indefinitely for the local authority to draw on.

In deciding to make available in four yearly instalments a further £1,000,000 of new money under the Housing Act, of which a first instalment of £140,000 is provided on the current year's Estimates, the Government directed that the money be utilized for assisting the housing of the poorer classes with a view to the improvement or removal of slum conditions as far as possible—the intention being that priority be given to local authorities in the areas of which there is urgent need for such assistance and which desire themselves to build small houses for renting or sale on easy terms to the poorer classes. Under the allocation as approved of the £1,000,000 of new money, Capetown is to receive £600,000; Port Elizabeth, £175,000; Durban, £120,000; Bloemfontein, £30,000; Uitenhage, £15,000, leaving the balance of £60,000 for allocation among other centres according to urgency of need.

At the request of the Capetown Municipality the Central Housing Board made a special visit to Capetown at the beginning of March, 1928, for the purpose of discussing with the responsible committee the Council's intentions for utilizing the allotment of £600,000 and examining tentative proposals and inspecting the sites in connection with certain projected housing schemes. As an outcome concrete proposals with supporting plans were submitted by the Council for carrying out two schemes at an estimated cost of £269,914 and embracing the erection of 295 cottages for Europeans on the Devil's Peak site above the De Waal Drive and 464 cottages for coloured persons on the Nieuwe Molen site near Maitland. Subject to certain slight amendments, the approval of both schemes was recommended by the Central Housing Board in Minute dated 16th March, 1928, addressed to the Provincial Secretary at Capetown, and on the 11th May, 1928, it was notified that the Administrator had sanctioned the carrying out of the scheme on the Devil's Peak site. It was not, however, until the 18th June, 1928, or after a lapse of three months, that it was intimated that the Provincial Executive Committee was unable to agree to the Council's proposed non-European scheme at Nieuwe Molen. Under the Act the final decision rests with the Administrator, and there is no intention therefore of discussing the grounds on which the Provincial Administration based its action in refusing to sanction the scheme at Nieuwe Molen. The details are simply mentioned as illustrating delays which occur and sometimes make it difficult if not impossible for a local authority to draw in full during the year the sum allocated for carrying out an instalment of its housing programme.

Out of the £120,000 allotted to the Durban Municipality a sum of £50,000 has been earmarked provisionally for Indian housing. In terms of the understanding reached at the round-table conference on the Indian question in South Africa, the Government agreed to appoint a committee to investigate the sanitary and housing conditions of the Indian population in and around Durban. It is hoped to arrange this shortly by way of a visit and investigation to be carried out by the Central Housing Board or its Executive.

No applications from local authorities for an allotment of funds under the Housing Act for purely native housing are approved unless supported by the Native Affairs Department after satisfying itself that there is need for additional housing accommodation, and with due regard to the underlying policy of the Natives (Urban Areas) Act of 1923. Under that Act the intention is to restrict the number of natives residing in an urban area to that which is necessarily required for normal labour requirements, and not to encourage any further extension of this permanent population; that further labour requirements be met by natives, accommodated in hostels and barracks, residing in the urban area only for the period of their engagement and returning to their kraals after completion of the term of their contracts; and that in the case of married natives accommodation be limited to meet the requirements of such families as are permanently domiciled and the members of which are employed or are rendering necessary services in the urban area.

In last annual report reference was made to the limits in operation since the commencement of the Act in regard to the cost of houses and amount of loans. These limits have been reduced from time to time to meet changed circumstances, and mention is to be made of a further reduction in this respect under the present policy of the Government which restricts financial assistance under the Act to houses costing not more than £800, exclusive of ground, with a loan limit of £650, except that in special circumstances on the recommendation of the Central Housing Board, and where the loan is being made not from the voted funds but from repaid capital, the limit in regard to the cost of the house may be increased up to £950, with a loan limit of £750.

The reports on overcrowding and bad and insufficient housing, which, in terms of section 131 of the Public Health Act, all urban local authorities are required to furnish annually to the Department, make it clear that the problem of the housing of the poorer classes is still a very real and serious one in several of the larger centres. The position is without doubt acutest at Capetown, followed by Port Elizabeth and Durban, and to a considerably less extent at Bloemfontein. In regard to the housing of coloured persons and natives the pressing need for improving existing conditions is evidenced at a number of the smaller urban centres as well. For various reasons speculative house-building for the poorer classes no longer attracts, and has practically ceased to function, and there appears little likelihood of activity in this direction being resumed. Any improvement of the existing unsatisfactory housing conditions among the poorer classes must therefore largely depend on the efforts of local authorities themselves to provide sanitary dwellings through the initiation of suitable housing schemes. In this connection it is pleasing to record that recently a number of the smaller local authorities are facing their responsibilities in the matter and embarking on such schemes with the aid of financial assistance under the Housing Act.

3. *Town Planning.*—During the 1928 Session an Ordinance [No. 24 of 1928 (Cape)] was passed by the Cape Provincial Council amending in certain respects—and more especially as regards the submission of separate diagrams and the transfer of erven purchased before the Ordinance of 1927 came into force—the Town Planning Ordinance, No. 13 of 1927 (Cape), outlined in last annual report.

The Orange Free State Provincial Council passed a "Township and Hamlet Ordinance," No. 6 of 1928 (Orange Free State), repealing the Townships Act, No. 15 of 1909, of that Province. The new measure is framed on the basis of that Act, amended more or less on the lines of the Cape Ordinance of 1927. It provides for the establishment of a townships board and prescribes its functions; deals with the establishment of new townships and the conditions of their establishment, and contains certain provisions for the re-layout of any unsatisfactory portions of existing townships, subject to the written consent of all the owners; also for the laying out of "hamlets" or small villages or urban communities in rural areas. It is an improvement in several respects on the old Act, but the provisions regarding revision of the layout of unsatisfactory areas of existing townships are so weak as to be likely to be of little or no practical value.

Despite repeated and pressing representations, the Natal Provincial Administration has so far done nothing in regard to town planning; conditions along the South Coast and in other parts of Natal are steadily becoming worse and more difficult to remedy or improve.

4. *Child Welfare.*—This includes many matters relating to child life, such as holding of infant and maternity clinics; carrying out treatment recommended for school children by school medical officers; providing meals for underfed school children; assisting magistrates in carrying out some of the provisions of the Children's Protection Acts; helping to train delinquent children and to provide for those abandoned; as well as taking measures to prevent normal children from falling into the delinquent and dependent classes.

The value of child welfare work and mothercraft training is being increasingly recognized by both local authorities and the public. Throughout the Union, 62 child welfare societies have already been affiliated to the South African National Council for Child Welfare, and other societies are being formed; during the past year ten new branches were started. Except in the case of a few of the larger societies, the workers are entirely voluntary. In some cases the society organizes and maintains infant and maternity clinics and classes for mothers; in others these are carried on by the municipality.

In October, 1927, the Second Annual Congress of the South African National Council for Child Welfare was held at Bloemfontein. At this Congress a number of very important resolutions dealing with various phases of child welfare were taken, including a proposal that the children in all institutions should be medically examined at regular intervals, and an inquiry into the provision for accommodation for chronic sick children in the Union. With regard to the latter, it was found that only two institutions existed for this purpose, viz., the Lady Michaelis' Home at Capetown and the Hope Convalescent Home in Johannesburg. At Durban and Isipingo in Natal there are two schools at which chronic sick children are specially taught.

At the Lady Buxton Home for Mothercraft Training, twelve nurses qualified during the year for the Athlone Certificate and three for the " Good Hope Nursery Nurse " Certificate. Many requests are being received at the Home for nurses so trained. During the year the Home received from the family of the late Mr. and Mrs. H. Struben the gift of a large house and grounds adjacent to the Home. This is to be adapted for the purposes of mothercraft, and the staff of the Training Centre are to be transferred to it as soon as sufficient funds are available for furnishing and equipping it.

" Our Children's Day " was held early in November, and was a great success, a total of £7,579 being collected. After paying necessary expenses, the sum of £2,426 was refunded to local societies as their share, and a sum of £4,577 credited to the general funds of the Council.

The grant-in-aid of £1,000 per annum to the South African National Council for Child Welfare was continued during the year, and another grant of £1,000 was included in the Department's vote for the Moedersbond Hospital, Pretoria, in respect of special training in midwifery and mothercraft given there to girls who come from rural areas and who undertake to return to work in those areas.

The registration of births and deaths and infantile mortality rates for European infants in each Province during the past year and the preceding ten years are shown in the following table :—

TABLE R.—EUROPEAN INFANTS: BIRTHS AND DEATHS UNDER ONE YEAR REGISTERED AND INFANTILE MORTALITY RATE, I.E. DEATH-RATE PER 1,000 BIRTHS, 1917-1927.

Year.	Cape.			Natal.			Transvaal.			Orange Free State.			Union.		
	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.
1917..............	17,521	1,436	81·96	2,756	171	62·05	15,486	1,309	84·53	4,959	353	71·18	40,722	3,269	80·27
1918..............	17,775	1,496	84·16	2,924	176	60·19	15,977	1,383	86·56	4,906	357	72·77	41,582	3,412	82·05
1919..............	16,749	1,351	80·66	2,910	191	65·64	15,338	1,326	86·45	4,727	382	80·81	39,724	3,250	81·81
1920..............	18,425	1,654	89·77	3,256	235	72·17	16,768	1,576	93·99	4,996	448	89·67	43,445	3,913	90·07
1921..............	18,062	1,382	76·51	3,370	203	60·24	16,582	1,374	82·86	5,288	379	71·67	43,302	3,338	77·09
1922..............	18,248	1,294	70·91	3,294	180	54·64	16,370	1,292	78·92	4,920	357	72·56	42,832	3,123	72·91
1923..............	18,296	1,353	73·95	3,229	197	61·01	15,619	1,261	80·74	5,037	328	65·12	42,181	3,139	74·42
1924..............	18,730	1,296	69·19	3,410	273	80·06	15,287	1,171	76·60	4,919	382	77·66	42,346	3,122	73·73
1925..............	18,366	1,343	73·12	3,509	206	58·71	16,348	1,059	64·78	5,188	361	69·58	43,411	2,969	68·39
1926..............	18,675	1,196	64·04	3,588	189	52·68	16,304	1,186	72·74	5,309	273	51·42	43,876	2,844	64·82
1927..............	18,537	1,293	69·75	3,435	166	48·32	17,050	1,359	79·71	5,325	314	58·97	44,347	3,132	70·63

5. *Opium and other Habit-forming Drugs.*—In co-operation with the Police and Commissioner of Customs and Excise the enforcement of the regulations with regard to opium, dagga, and other habit-forming drugs has been actively continued during the year. The following table shows the prosecutions and convictions:—

TABLE S.—SHOWING PROSECUTIONS AND CONVICTIONS UNDER LAWS RELATING TO HABIT-FORMING DRUGS DURING THE PERIOD 1ST JULY, 1927, TO 30TH JUNE, 1928.

Province.	European.		Native.		Asiatic.		Other Coloured.		Total.	
	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.
Cape	13	12	483	451	17	14	781	762	1,294	1,239
Natal	—	—	1,037	1,015	46	46	15	15	1,098	1,076
Transvaal	17	15	1,329	1,288	14	13	84	76	1,444	1,392
Orange Free State	7	6	295	285	—	—	22	22	324	313
UNION	37	33	3,144	3,039	77	73	902	875	4,160	4,020

Of the total of 4,160 prosecutions, 4,142 were in respect of dagga and 18 of opium; 24 lb. 10 oz. 240 gr., also two jars (weight not stated) and six pills of opium and large quantities of dagga were seized and confiscated.

The total quantities of these drugs authorized to be imported into the Union during the year ended 30th June, 1928, were:—Opium, 888 lb. 5 oz. 67 gr.; Morphine, 122 lb. 2 oz. 330 gr.; Heroin, 3 lb. 15 oz. 197 gr.; Cannabis Indica, 18 lb. 10 oz. 336 gr.

The following exports of habit-forming drugs from the Union were authorized during the year ended 30th June, 1928:—Opium, 13 oz. 456 gr.; Morphine, 3 lb. 4 oz. 378 gr.; Cocaine, 8 oz. 304 gr.; Heroin, 1 oz. 439 gr.

Permits have also been issued for the export to London of 4,560 lb. of dagga or Indian hemp grown in the Union. The permit for the cultivation of dagga for export purposes issued to a farmer in the Koster area, Rustenburg District, Transvaal, was renewed for the calendar year 1928.

6. *Slaughtering and Meat Inspection.*—Facilities and arrangements are steadily improving, but many of the smaller and a few of the larger urban local authorities have so far failed to provide suitable public abattoirs and to organize a system of inspection and supervision of meat supplies in consonance with the requirements of modern hygiene. In many places slaughtering is still done in private slaughter houses of primitive type, under unappetising and sometimes actually dirty conditions, and without competent inspection to detect disease or unsoundness. Special attention is given to these matters by Union Assistant Health Officers when making systematic inspections of local authority areas, and representations, based on their reports, are thereafter made by the Department, where necessary, to the local authority concerned.

The viability of the parasite of " measles " in cold storage and in brine is still under investigation: this matter will be specially considered by the Council of Public Health at its next meeting.

Hitherto no local authority has adopted the suggestion mentioned in last annual report to sterilize and thereafter sell " measly " meat at a low price to the poorer classes of the population (Freibank system).

Great difficulties and delays have been experienced in obtaining reports and returns from local authorities regarding the working during the year of the Regulations *re* Slaughtering and Meat Inspection (Government Notice No. 2118 of 1924). Despite repeated requests and reminders, many of these returns are still outstanding, and it is therefore not proposed to publish a summarized return for the Union in this report.

7. *Medical, Dental, Pharmacy and Midwifery Matters.*—New regulations for nurses and midwives, substantially uniform for all four Provinces, came into operation in respect of new entrants after 1st July, 1927. These provide, *inter alia,* for considerable increases of the period of training required. Under them, training should be more thorough and extensive, but the aggregate annual output of trained nurses and midwives from the institutions recognized as training schools will be materially reduced—an unfortunate result in view of the general shortage.

At the end of June, 1928, the students in the medical and dental schools of the Universities of Capetown and the Witwatersrand were as follows:—Medical, 487; public health, 14; tropical medicine and hygiene, 2; dentistry, 26. The following table shows the registrations under the Medical, Dental, and Pharmacy Laws during the year ender 30th June, 1928, and the total number of registrations as on that date. It should be noted that many persons are registered in more than one Province, so that the number of registrations considerably exceeds the number of individuals:—

TABLE T.—REGISTRATIONS UNDER THE MEDICAL, DENTAL, AND PHARMACY LAWS DURING THE PERIOD 1ST JULY, 1927, TO 30TH JUNE, 1928.

Province.	Medical Practitioners.	Dentists.	Chemists and Druggists.	Midwives.	Trained Nurses.	Mental Nurses.	Total.
Cape..................	74	10	20	113	149	51	417
Natal..................	16	6	17	44	53	—	136
Transvaal..............	69	18	18	65	124	—	294
Orange Free State.......	21	9	10	7	25	—	72
UNION...........	180	43	65	229	351	51	919
Total on register on 30th June, 1928 ..	3,299	913	1,558	3,439	4,499	410	14,118

8. *Sanitary Inspectors, Health Visitors, etc.*—The joint scheme of training, examination, and certification by the Union Government (Departments of Public Health and Education) and the Royal Sanitary Institute, detailed in the 1925-26 report, is working well and satisfactorily. During the year, 19 sanitary inspectors, 9 health visitors and school nurses, 3 meat and food inspectors, and 1 building and public works inspector passed the examination. Under the new Medical, Dental, and Pharmacy Act, the Medical Council may itself institute an examination or recognize other examination certificates and establish a register for sanitary or health inspectors, health visitors, and cognate classes.

9. *Nursing and Maternity Homes.*—The system of registration and inspection described in previous reports has been continued. The following table summarizes the work done during the year:—

TABLE U.—NURSING AND MATERNITY HOMES: INSPECTIONS DURING THE YEAR ENDED 30TH JUNE, 1928.

Place.	Total Number.	Number Inspected.	
		By Medical Officer of Local Authority.	By Government Health Officer.
Cape Province—			
Capetown..................................	26	25	—
East London..................................	11	9	—
Port Elizabeth..................................	10	10	—
Elsewhere..................................	71	—	15
Natal Province—			
Durban..................................	24	—	—
Pietermaritzburg..........................	9	9	—
Elsewhere..................................	19	—	—
Transvaal Province—			
Johannesburg..............................	29	—	—
Pretoria..................................	9	4	—
Elsewhere..................................	48	—	9
Orange Free State Province—			
Bloemfontein..............................	4	—	3
Elsewhere..................................	23	—	—
UNION..................	283	57	27

Some of these nursing homes are excellent, most are reasonably satisfactory, but some are unsatisfactory as regards construction, equipment, staff, or otherwise. The relative clauses in the Public Health Amendment Act, No. 15 of 1928, making it an offence for any person to open or carry on a nursing home unless it is registered, and empowering the Minister to refuse registration where the home is unsatisfactory in any respect, will enable the Department to exercise much more effective control.

10. *General Hospitals.*—In the last report a summary was given of the main conclusions of the Hospital Survey Committee. The recommendations of this Committee were not accepted by the Cape Provincial Administration. They were generally concurred in by the Transvaal and to a less extent by the two smaller Provinces.

In the Cape Province the hospital position is rapidly becoming dangerous. In the Orange Free State the provision of hospital beds for the Native population is still hopelessly inadequate, and the Executive Committee has intimated that it is not prepared to deal with this problem unless the Union Government comes to the assistance of the Province.

On the 1st December, 1927, Dr. A. J. van der Spuy was transferred from the Department of Defence as an Assistant Health Officer, his primary duty being the inspection of hospitals on behalf of the Union Health Department for the Provincial Administrations. A conference was arranged at Pretoria with the object of framing a uniform system of accounts for the hospitals. This conference successfully completed its task in a day, and, though all the Provinces still unfortunately retain varying systems, at least the allocation of expenditure has been put on a uniform basis, and the accounts of the hospitals in the different Provinces should be more readily comparable than has been possible hitherto. The Cape and Orange Free State Provincial Administrations have requested that the hospitals under their control should be inspected by the Department's medical inspector systematically and annually. The Transvaal and Natal Provincial Administrations have intimated to the Department that they do not desire the routine inspection of their hospitals and that inspections be made only on special request. Up to the 30th June, 1928, thirty-three hospitals and kindred institutions were visited and dealt with by the medical inspector.

On the 7th December, 1927, the Executive Committee of the Transvaal appointed a Commission to report upon the present system of financing and administering hospitals in that Province, with Sir E. N. Thornton, Senior Assistant Health Officer in this Department, as chairman. The Commission presented its report on the 7th February, 1928, and embodied most of its proposals in a draft Ordinance. This, with certain minor modifications, was accepted by the Executive Committee, and has since been passed by the Provincial Council and promulgated.

Under the new Law the hospitals of the Transvaal will become State-aided institutions, and will be controlled by Boards constituted on lines similar to those in the Cape and Orange Free State Provinces. The Hospital Ordinance should tend to the development of local government in the Transvaal, and should facilitate and promote hospital administration and development in the Province.

Public opinion in favour of the Union Government taking over from the Provinces their responsibilities in connection with the administration of hospitals appears to be growing. In a number of areas there is a strong demand for the organization of a district nursing service in connection with hospitals, but except in the area of the Cape Hospital Board where several district nurses have been appointed, nothing has so far been done in this matter, and it seems unlikely that under the present system anything will be done.

11. *Vaccines, Sera, Pathogenic Cultures, etc.*—Twelve permits under the regulations promulgated under Government Notice No. 2306 of 1920 have been issued in respect of the calendar year 1928, all being to bacteriologists conducting laboratories.

12. *Cancer.*—Mortality statistics in the Union during recent years show a steady increase in the number of persons certified to have died from cancer. This is equally true of other parts of the civilized world. Many considerations have been advanced to account for this increase, but until more is known of the causes and true nature of the disease the reasons for its spread will remain obscure.

In the Union of South Africa during the six years 1912-1917, 4,015 Europeans were medically certified to have died from cancer, while during the six years 1921-1926 the corresponding number of deaths was 6,405—an increase of about 25 per cent. in 10 years after taking into account the increased population during the latter period. As it is known that all deaths are not medically certified, the total number of deaths of Europeans caused by cancer is estimated at:—

1912-1917	5,079 deaths.
1921-1926	7,598 deaths.

The proportion of deaths from cancer to the total of all European deaths was 4.83 per cent. during the former and 6.88 per cent. during the latter period.

Studies of the problem in other countries show conclusively that the lives of many sufferers from cancer would be saved if all cancer patients sought medical advice and submitted to skilled treatment *in the early stages of the disease.*

In addition to the extensive investigations which are being carried out in other countries into the causes and nature of cancer, research is being conducted at the South African Institute for Medical Research, Johannesburg, especially by Dr. M. J. A. des Ligneris, the Arnold Friedlander Research Fellow. New methods of cultivation of animal tissues *in vitro* are being applied to tumour growths—a new line of research in this country which it is hoped may lead to useful results.

An informative and useful pamphlet, framed in simple language, on " Cancer and its Treatment and Prevention " [No. 370 (Health)], has been prepared by the Department, and will be shortly issued to all local authorities and other bodies interested in the matter. An organization for promoting and carrying on publicity and educative work regarding cancer in the Union is much needed. A large percentage of cases, even amongst Europeans, only come to notice when the disease is already so far advanced that successful treatment can hardly be hoped for, and a considerable further proportion are never seen by a medical man. " Cancer-curers " claiming to have wonderful secret remedies (many of them having as a basis arsenic or antimony caustic pastes which were in use in Roman times and have long since been discarded by medical science) are numerous, and levy a heavy annual toll, both in money and life, on the unfortunate sufferers who confide in them. The dissemination amongst all classes of the people of a knowledge of cancer (incomplete though it is), and its predisposing causes and preventive precautions, its early symptoms and the vital importance of early and competent treatment, would lead to a very considerable saving of life and suffering.

13. *Public Swimming Baths.*—During the year a questionnaire was circulated to all local authorities in whose areas swimming baths were known to exist asking for information with regard to administration, dimensions, capacity, source from which water was obtained, and precautions adopted to maintain the purity of the water. In all twenty-two replies, giving particulars of thirty baths, were received. The replies revealed a great diversity of practice in all these matters.

Whilst the majority of public swimming baths would appear to be under the direct control of the local authority of the area in which they are situated, there are many which are administered by institutions of a semi-private nature, such as clubs and schools. Water is derived from such various sources as the town supply, the sea, wells, irrigation dams, rivers, and springs. Out of the total of 30 baths, particulars of which were received, preliminary treatment of water is resorted to in 20. Of the 10 in which no preliminary treatment is given, 5 use sea-water and 1 the water of a thermal spring. Systems of continuous purification are installed in only five.

An analysis of the available data would appear to indicate that it is only in the larger inland municipalities that the advisability of safeguarding the purity of water in public swimming baths is appreciated. In no instance where sea-water is used in enclosed baths has any system of purification been adopted, and bacteriological examination of the water has in some cases revealed a considerable degree of pollution. Small local authorities either take no precautions to ensure a pure supply of water or are content to use the ordinary town supply relying on either frequent or occasional renewals, depending on the size of the bath and the average number of bathers, to ensure a fairly pure standard. In this connection, it is to be noted that several authorities resort to " refreshing." Refreshing apparently means that a proportion of fresh water less in volume than the total capacity of the bath is run in, any surplus being allowed to overflow. This process does not seem to be controlled in any way, and no data are available as to its effect on the composition of the water in the bath.

Whilst it would appear that greater care to guard against the risks of transmission of disease through the medium of public swimming baths is desirable in some centres, it is very difficult to lay down hard and fast rules which would be applicable to all cases. Some measures of supervision can be exercised by including them in the systematic inspections of local authority areas which are carried out by officers of this Department, each bath being dealt with on its merits and in the light of local circumstances and conditions.

I have the honour to be, Sir,
Your obedient servant,
J. ALEXANDER MITCHELL,
Secretary for Public Health and Chief
Health Officer.

Department of Public Health,
Union Buildings, Pretoria,
15th October, 1928.